

5.14

DAYLIGHTING

Prism Transoms, Sheet
Prism Glass, Diffusing Tile,
Sidewalk Lights, Floor Lights,
Skylights, Sidewalk Doors
and their Accessories

CATALOG 21

AMERICAN 3WAY-LUXFER PRISM CO.

1305-1309 S. 55th Court
CICERO, ILL.
(Chicago Suburb)

139-141 Spring Street
NEW YORK, N.Y.

Announcement of Consolidation

FOR twenty years, two concerns have been leaders in the distribution of daylight by means of Prismatic Transom Lights, Sky Lights and Sidewalk Lights. They led because their products gave the greatest measure of satisfaction and service to the Architect, the Contractor and the Owner. These firms were the

AMERICAN 3-WAY PRISM COMPANY
AMERICAN LUXFER PRISM COMPANY

On January 1, 1920, these two companies merged their business, their interests and their good-will into one corporation. In this new organization the officers of the old American 3-Way Prism Company will direct the policies of the business.

This consolidation opens to the Architects and the Building Trade the finest of daylighting media from one leading source. The best of both lines are featured in this, the first catalog of the new company.

We bespeak the same friendly coöperation for the new corporation as was extended to the two old ones.

AMERICAN 3WAY-LUXFER PRISM CO.

1305-1309 S. 55th Court
CICERO, ILL.
(Chicago Suburb)

139-141 Spring Street
NEW YORK, N. Y.

BRANCHES: 435 Washington Street, BOSTON, MASS.
300 Builders' Exchange, MINNEAPOLIS, MINN.
Grand Ave. Temple Bldg., KANSAS CITY, MO.
400 Penobscot Bldg., DETROIT, MICH.



The Value and Cost of DAYLIGHT Compared With Artificial Illumination

WE TAKE *daylight* for granted; it is so universal and so cheap that we fail to give it the thought we should. It is acknowledged not only the cheapest but the most satisfactory illumination.

Through Transoms and Windows

Windows are put in buildings to permit the entrance of *daylight*; but how often does the architect or the builder fail to take advantage of the method of securing the fullest value of that window by fitting it with a means of directing the great quantity of light to the interior of the room.

In stores, merchandise of all kinds cannot be easily selected—color comparisons are impossible—even quality determination is difficult—without daylight. Yet many fail to plan to *daylight* every portion of the store.

In factories, offices and all places where mechanical or manual operations are performed, the work is speeded up; it is made easier; the efficiency of the people is multiplied, if the rooms are illumined with *daylight*. And as this can be so easily and cheaply secured, there is an extravagance in its omission. Human material, the most valuable asset of industry, is conserved and made more efficient thru *daylight* illumination.

Every foot of every building should be usable to its fullest capacity by introducing *daylight* as its illuminant. Old buildings should be remodeled and *daylight* let into the dark corners.

New buildings should have it planned for in their erection.

Scientific Comparison With Artificial Light

That you may gain an idea of the comparative efficiency of daylight and artificial light, we quote from tests recently completed. Dr. Ives and Prof. Luckish, among others, have measured the illuminating power of daylight in the terms of our basis of figuring—the candle power. Culled from the great masses of these reports, we find these deductions: From a clear blue sky, without direct sunlight, approximately ten candle power of daylight falls or strikes every square inch of surface. Thus on a store window 8 feet by 6 feet almost 70,000 candle power of light strikes. If all this entered the room it would give ample illumination; but much is reflected off and lost.

To direct this to the interior of the room some means must be found. This is the prism's duty; for the prism, by the use of a natural law, diverts the lost daylight to the very ends of the rooms to be lighted—even to a depth of 200 feet.

If we try to estimate the cost of providing enough artificial light to equal this illumination—even if it were as satisfactory—it would be staggering in its amount.

Because of these problems facing Architects and Builders, we are outlining on the following pages the solution. Our long experience as "Distributors of Daylight" has established us as the leading authorities on this subject. May we offer you any assistance in your problems?

AMERICAN 3WAY-LUXFER PRISM CO.

CICERO, ILL.

NEW YORK, N. Y.

Prism Transoms and Sash Lights Add Great Value to Any Store Building

THE glass area of display windows has been constantly increased until, today, in many constructions, the display space extends far into the interior of the store. In these the bulks are backed so that the only illumination of the room is by the transom.

Therefore, this limited space must be utilized to the utmost by the installation of 3 WAY—LUXFER Prism Transom Lights. And in practically every case this installation will obviate entirely the need of artificial lights.



Small Town Business Block Modernized and Daylighted With 3 Way—Luxfer Prism Transoms

Before

For, as we show on the preceding page, ten candle power of daylight strikes every square inch of surface; therefore, on a transom 20 feet long and 3 feet wide over 85,000 candle power of light falls. Divert this, or even the greater part of it, into the room with the prisms and no artificial light is needed.

Because prismatic daylighting makes the selection of goods easier, the matching of colors exact, and the selling of goods faster, business is better and stores so fitted are in greater demand. This is

reflected to the owner in higher rentals and a constant call for his space. And there is a decided economy to the storekeeper—in lessened cost of artificial light—in a store illumined with 3 WAY—LUXFER Prism Transoms.

Added to this is the extremely attractive appearance that a store front which is fitted with 3 WAY—LUXFER Prism Transoms puts up. It is a continual advertisement of progress.

While the main floors show the greatest effect from the 3 WAY—LUXFER daylighting, the upper floors of a building must not be overlooked. Deep rooms, with windows front and rear, can only be daylighted thruout by fitting the upper sash of these windows with 3 WAY—LUXFER Prisms. Upper floor salesrooms, shops and work-rooms are thus more than doubled in value.



After

Whether your building be an old one or whether it be one in prospect, make every foot of space available and usable by installing 3 WAY—LUXFER Prisms.

Although highly scientific in their principle and construction, it is an easy matter for anyone to order them and to install them without previous experience. Please see page 34 for instructions.

Keep Transoms as Clean as Display Windows

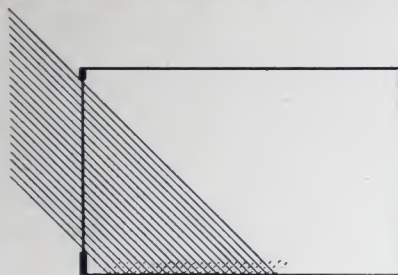
All that is needed to maintain the light-giving power of 3 WAY—LUXFER PRISMS indefinitely—is to keep them clean. The outside of the prism tiles is smooth; wash them whenever you wash your windows.

The prisms should be scrubbed once a month with an ordinary scrub brush and a solution of hot water, to each pailful of which a teacupful of ammonia is added.

The Science of Prismatic Lighting

PRISMATIC lighting (if correctly done) is infallibly satisfactory because it is based on a natural law. And, based on that same law, rooms *not* fitted with 3 WAY—LUXFER Prisms are bound to be insufficiently daylighted.

That law is: "Light rays always travel in straight lines unless turned by some body or substance with which they come in contact."



Sketch No. 1

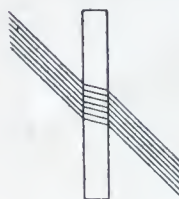
or walls and are reflected on, or are blocked. On the other hand, if a prism transom is installed the light rays are refracted out of their straight path and are directed along the lines as indicated in sketch No. 2. These reach the very ends of a room as deep as 200 feet. When the main portion of a window is backed up, so that light cannot enter, how much greater is the need of the 3 WAY—LUXFER Prismatic Transom.

Thus, as we mentioned on the preceding page,

a transom of 3 feet by 20 feet would transmit to a store's interior the greater part of 85,000 candle power of daylight.

And as the ceiling and upper walls of a room are seldom blocked, this 85,000 candle power of daylight is carried on and reflected till every part of the room is fully illumined.

Sketches Nos. 3 and 4 show in detail the action of the light rays. No. 3 illustrates the plain glass in which the faces are parallel. As the light rays pass through this they maintain the same general direction, although they are deflected a trifle. This deflection and the refraction shown in sketch No. 4 are due to the natural law that "light rays entering a substance or medium of different density than that they are in, change their direction of travel in definite relation to the direction of approach and the density of the new medium." As the light rays pass



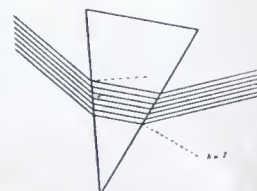
Sketch No. 3

thru the pane of plain glass (sketch No. 3) they are refracted up and then down in exactly the same angles, for the surfaces they approach are parallel. However, in sketch No. 4 the glass is prism shaped. Therefore, the surface, where the light rays leave, is at an angle to that at which they entered. This, due to the action of nature's

law, directs the rays *up* instead of *down*.

As can be seen in sketch No. 5, the light rays that approach a prism transom in a myriad of directions are refracted into the store's interior and so spread as to take fullest advantage of the reflection value of ceiling and walls.

Thus, with no expense, beyond the original installation, and that practically no more than plate glass, a store room can be perfectly illumined without artificial light.



Sketch No. 4

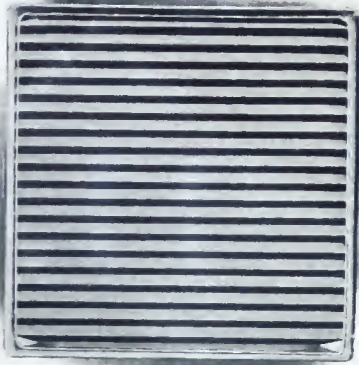


Sketch No. 5

3 Way—Luxfer Prism Tiles

IN BOTH the 3-WAY and the LUXFER Prisms this natural law of the refraction of light rays is brought to its finest commercial use.

The word LUXFER is derived from two Latin words, "Lux" meaning light, and "fero" meaning to carry. And just so the LUXFER prisms carry light to dark interiors.



Face of Luxfer Tile

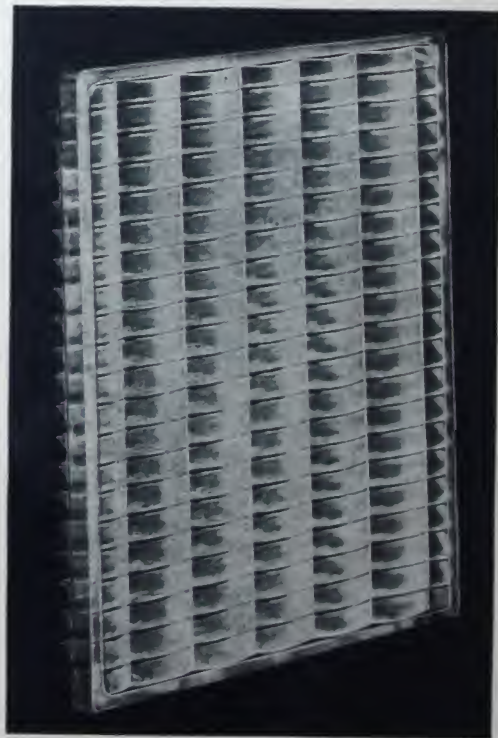
The 3-Way prisms are so named because they transmit the light to the interior of the room from *three ways* or directions.

In the 3-WAY and the LUXFER Prisms the glass is pressed into 4-inch tiles. These are made of the famous LAZALITE glass that contains no manganese in its mixture, **so will not turn purple or pink** under action of the elements. The faces of both of these types of tile are molded into a succession of horizontal prisms, each about $\frac{1}{8}$ -inch deep. Thus the entire piece of glass becomes a refracting medium, for wherever

a ray of light strikes it there is a prism to catch the ray and refract it into the room. Experience has proven that this 4-inch tile is the most satisfactory size. It is large enough to give the fullest light surface, yet it is small enough that it does not warp in cooling and thus destroy the accuracy of the angles.

To meet the many situations that arise, we make the 3-WAY and the LUXFER Prism Tiles in many different angles. These are carefully determined to be the proper ones for each varying situation and uses in the places indicated. Note the different angles as shown in diagram on page 34.

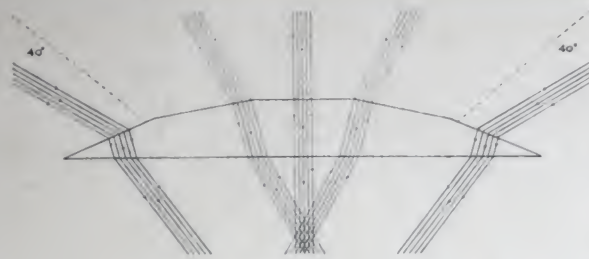
The difference between the 3-WAY and the LUXFER prism tiles is only in the back. Both are made in the same



Back of 3-Way Tile

3 Way—Luxfer Prism Transoms

Detail and Specifications, page 34



Sketch No. 6

accurate angles, pressed from the famous "Lazalite" glass, but the LUXFER has a perfectly smooth back, while the 3-WAY has a back made up of a series of cylindrical lenses. These are at right angles to the prisms on the face. These lenses are 1/16-inch deep and 5/8-inch wide.

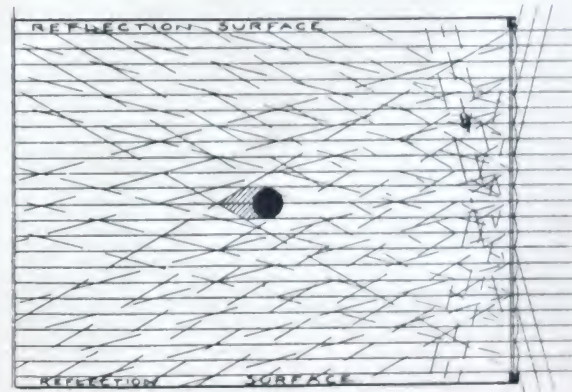
Because of this form of back the 3-WAY prism tiles will catch and transmit the light coming from the sides of the window. According to natural laws all light rays striking a glass at an angle of less than approximately 41° are reflected off and lost. Therefore, all light coming from the sides and striking a flat glass does not go through. On the other hand, because of these vertical lenses on the 3-WAY prism tiles the greater part of the light rays from the sides are caught and turned into the room.

As lenses are in fact prisms of myriad faces, the reason for this action is the

same as the prism described on the preceding page. The sketch No. 6 illustrates the action fully.

Because of this double action of the 3-WAY prisms, it is claimed that they transmit at least a third more daylight than any other medium. And not only do they transmit more light, but the lens backs so distribute the rays that they reflect from the walls to the fullest degree. Sketch No. 7 illustrates this.

Because of the multiplicity of angles of the light rays projected from the sides, thru the 3-WAY Prism Tiles, and the consequent reflection from the walls shadows are almost entirely eliminated. More light, more thoroughly distributed is the result of installing 3-WAY Prism Transoms.



Sketch No. 7

In order that the fullest value of the prism may be secured by reflection from walls and ceilings, they should be kept as light in color as possible.



Before Daylighting

After Daylighting

3 Way—Luxfer Prism Transoms

Details and Specifications

Page 34

3 Way—Luxfer Diffusing Tile

THERE are many store rooms which are so well daylighted that they do not need the refracting value of the prism transoms, yet they would be cold and with a hard light if plain plate glass were installed in their transoms. To meet this need and to supply the architect and contractor with a glass that would be ornamental, yet light-diffusing, rather than light-obstructing, as much so-called ornamental glass is, we offer these two types of 3 WAY—LUXFER Lens Diffusing Tile.



3 Way—Luxfer Lenticular Diffusing Tile

These both are pressed, in perfect form, into 4 inch tiles, the same as the 3 WAY—LUXFER Prism Tiles. Glass is the famous Lazalite quality that does not turn pink or purple under action of the elements.

Our object in developing these particular designs was to take advantage of the modified lenses formed by the crossed cylinder and spiral curves. Like the lenticular back of the noted 3-WAY Prism Tile, these curved surfaces catch and transmit to the store's interior, in a soft, diffused light, more daylight than plain or the so-called ornamental sheet glasses.

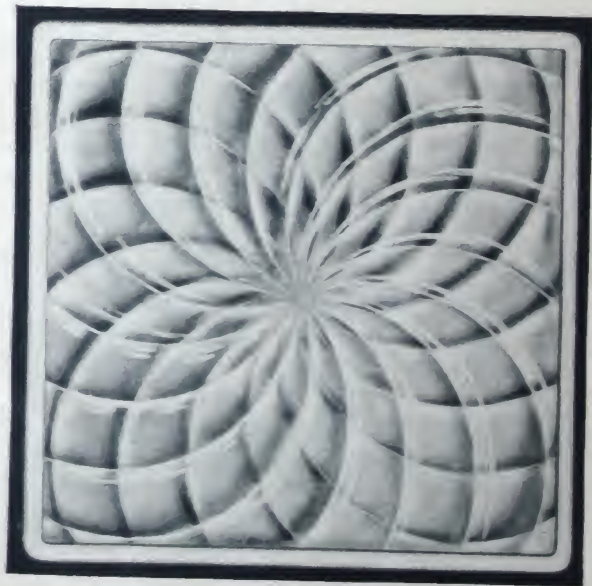
3 Way—Luxfer Prism Transoms

Specifications and Detail, page 34

In fact, the Lenticular Type of Diffusing Tile is an adaptation of our lens-back 3 WAY Prism Tile. The arcs of the cylinder lenses are placed on the diagonal of the tile, extending in opposite directions on the two sides. This breaks the effect on the light rays so that they do not "rainbow." Attractive, easily kept clean, as they are smooth, with no projecting shoulders to catch and hold dirt, and light-diffusing as well, this is a very popular installation.

In fact, these lenticular lenses are more self-cleaning than plain tile or plate glass. As the rain washes down over the glass the water gathers in the grooves and then overflows in quantities and thus flushes the glass clean.

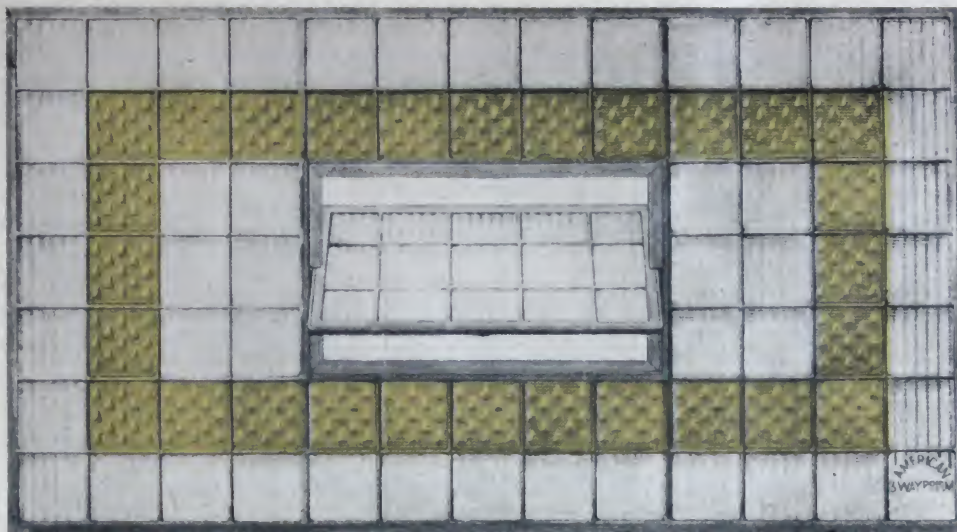
The Spiralite Diffusing Tile is more purely ornamental in its design. The spirals on the front extending from left to right and on the back in the reverse direction. This cuts the surfaces into odd-shaped lenses which catch and diffuse the light in a very pleasing manner.



3 Way—Luxfer Spiralite Diffusing Tile

These tile are made up into transom panels in the same manner as the prism tile (as described on the next page). Used as ornamental borders in the prism transoms, they lend a very dignified appearance to the installation.

Signs, embodying firm names and businesses, can be incorporated in transoms of 3 WAY—LUXFER Diffusing Tile. In building up transoms of 3 WAY—LUXFER Diffusing Tile, each will be used as border on panel of other unless otherwise specified.



What You Get When You Buy a 3 Way—Luxfer Prism Transom

BOTH the 3-WAY and the LUXFER 4-inch Pressed Tiles, of accurate angles, are built up into panels to fit the transom lights of first floor stores or the upper sash of windows on other floors. These panels can be made any size required and of any angle prism tiles needed.

The 4-inch tile are assembled in heavy gauge, cold drawn zinc glazing bars, built up with our improved lock or broken point construction. Each panel is finished with a flat metal margin strip or edge bar the thickness of ordinary plate glass.

All bars and margin strips are carefully spot soldered on both sides and sufficiently reinforced to make panels rigid. Then the entire panel is heavily copper-plated to insure its long life and to add to its attractive appearance. All glass edges are packed in cement so that this beautiful panel is as weatherproof as a plate of plain glass.

As these are set in exactly the same way as plate glass no skilled labor is needed to install them. The top, bottom and front and back are plainly marked so that no mistake can be made. Panels longer than 10 feet are made in sections and are bolted together on the inside at time of setting. This joint is so carefully made that it is weather tight.

3 Way Luxfer Prism Transoms

Detail and Specifications, page 34

To add to the beauty of the installation we glaze these with a border of ornamental prism tile, either LUXFER Design Back or Dew-drop, of clear glass. When ordered special we furnish amber or green Dew-drop Tile or Lenticular or Spiralite Diffusing Tile in the borders.

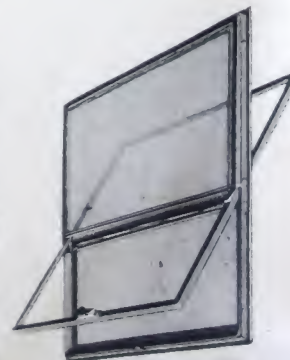
Although the 3-WAY and LUXFER Prism Tile Transoms are sold by the regular glass dealers everywhere, they are all built up at the factory, of tile of the proper angles as needed in each case. The data sheet on page 34 must be filled out so that we can determine the proper angles to select for each installation.

VENTILATION

When plain glass is set in transoms there is no opportunity for ventilation. In any of the 3 WAY—LUXFER constructions attractive ventilators can be built in as part of the panels. These are made of the same tile as the transom panel and add greatly to the attractiveness of the same.

The swinging ventilator is self-closing and locking; is weather tight when shut.

All ventilators can be fitted with our removable flat screens that are practically flush with the glass.



3 Way Ventilator, Pat. Flat Screen.

3 Way—Luxfer Transom Signs

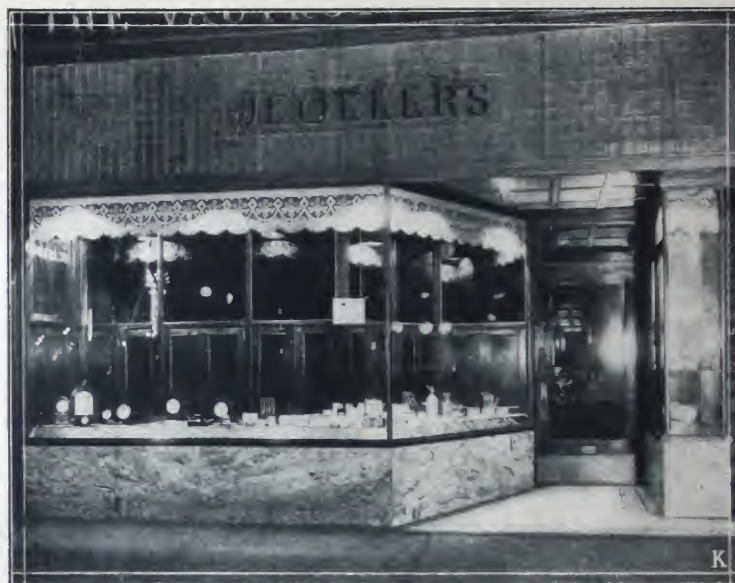


A VERY logical and very practical development of the prism transom is the incorporation of the store's name and business in the form of a sign of colored or luminous glass. The great value of this is that the sign works during the evening as well as the day, for the store lights, shining thru the transom, illumine this sign.

No matter how elaborate or intricate a design, we can work out trademarks, distinctive forms of names in any number of colors.

These signs can be constructed in conjunction with our regular 3 WAY—LUXFER Pressed 4-inch Prism Tile, Diffusing Tile or Sheet Prism Glass.

As each of these sign transoms is a special job, we suggest that sketches be sent us for estimate.



3 Way—Luxfer Prism Canopies

In those locations where the light arc is too narrow to use the transom light installation—as in narrow streets, courts and alleyways—we mount the prism panels on a frame and swing it as a canopy or awning. The use of the proper angle of prism diverts the light, falling straight down, into the room's interior.

These framed panels are pivoted on brackets which are securely bolted to the wall; thus they can be made so they will revolve, under chain control, to allow easy cleaning. 3 WAY—LUXFER Prism Canopies are strong enough to withstand all snow loads. For the illumination of dark rooms in apartments, office buildings and residences, this construction is particularly adaptable.



3 Way—Luxfer Ceiling Lights



3 WAY—LUXFER Prismatic Ceiling Lights are rapidly replacing the old style stained glass panels under skylights and roof lights in banks, hotels, clubs, stores, office buildings and residences because they satisfy perfectly the requirements of such an installation. First, they are unlimited in their decorative possibilities, and second, they effectively complete the service for which the skylight was inserted—they illuminate the entire room beneath, instead of absorbing the light as stained glass panels do. The prism panels distribute the light to every portion of the room. Thus, without destroying the artistic features of a ceiling light, thousands of libraries, counting rooms, dining rooms and sales rooms are made more cheerful, attractive and valuable.

3 Way—Luxfer Extension Skylight

Whenever the lower floor extends beyond the upper the roof should be built in the form of a prismatic extension skylight. This construction is a growth from the prism canopy.

As the light drops down the narrow alley or court it is caught by the prisms and diverted to the far ends of the room. 3 WAY—LUXFER Pressed Prism Tiles 12 inches square and $\frac{5}{8}$ -inch thick are set in heavy galvanized steel or zinc bars and then after cementing, the joints are capped by bolted-on caps that make the joint water tight and weather-proof. Details and specifications on page 35.

This construction is approved by the National Board of Fire Underwriters and the Fire Insurance Exchange. It may be installed without the use of protecting screens.

It is a simple matter to set these skylights and old types of extension skylights should be replaced by them as rapidly as possible to insure an economy of daylighting dark interiors. We also suggest our Simplex skylight construction as described on page 25.



3 Way—Luxfer Prism Lights

Detail and Specifications, page 34
Extension Skylights, page 40

Factory and School Daylighting

IN THIS day of high wages and short hours it is imperative, for the sake of greatest production, that the working conditions be made as attractive as possible. One vital factor in this is daylight. Even the steel sash construction, that makes the entire side of the room glass, does not carry the illumination to the place where it is needed most—the center of the room. To do this the upper half of all sash should be glazed with prism glass.



Factory Before Daylighting

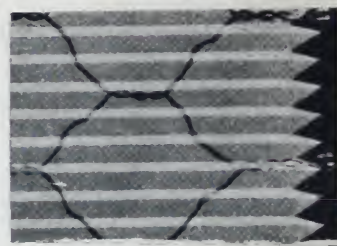
If this is done the daylight will be diffused to the far corners of the room. For this purpose we recommend the 3 WAY—LUXFER Sheet Prism glass, cut to size to fit the sash. This is made in a number of different angles to meet the varying requirements of the installations



Upper Sash Glazed with Sheet Prisms

While, because of the method of manufacture, sheet prism glass cannot be as accurate in angle as the pressed tile prisms, the sheet prism glass, as manufactured and sold by us, is the most accurate and most satisfactory of any on the market.

For those installations where there is a fire hazard, we suggest the use of our wired sheet prism. When installed in accordance with the Underwriters' rulings, this often leads to reduced insurance premiums.



For properly daylighting school rooms in closely built or congested districts, the upper sash of all windows should be



Factory After Daylighting

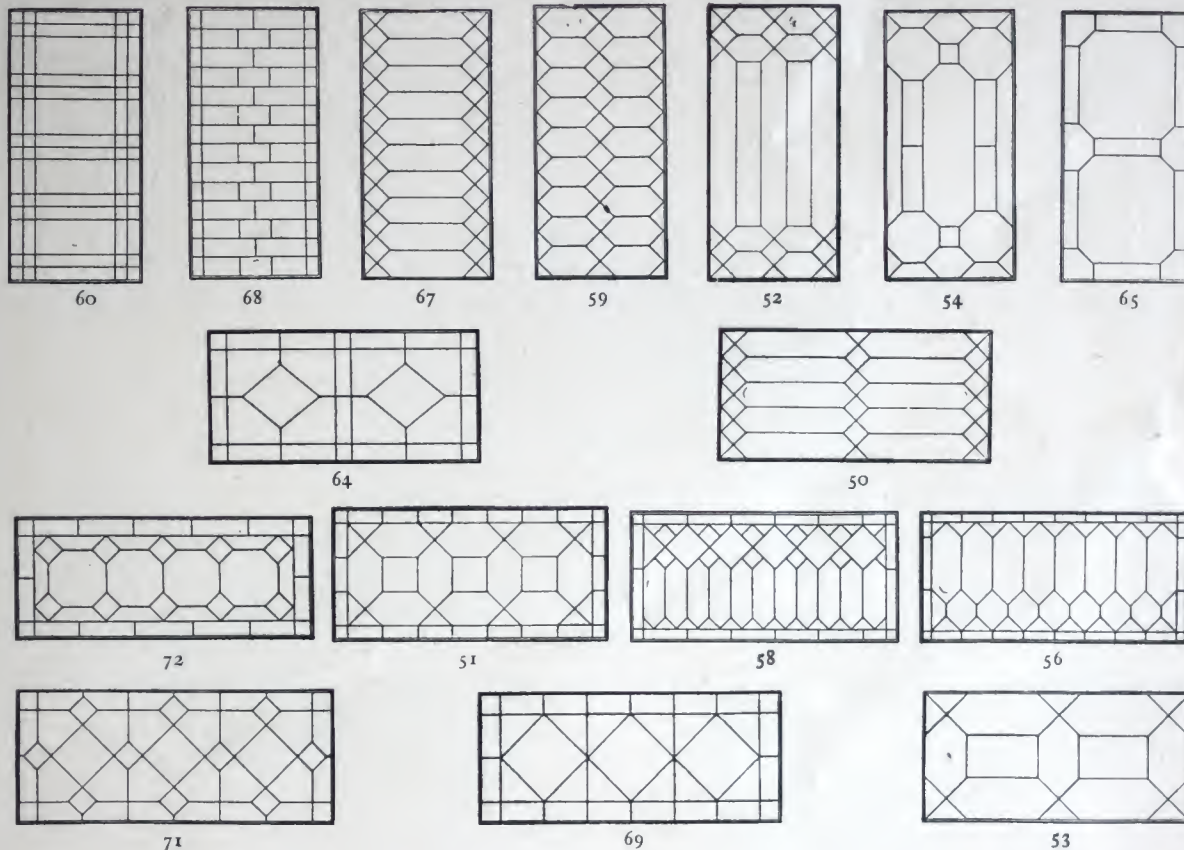
glazed with a 3 WAY—LUXFER sheet prism glass.

The chart on page 34 makes it easy for your dealer to supply the proper angle to insure the greatest illumination.

3 Way—Luxfer Daylighting

Details and Specifications, page 34

3 Way—Luxfer Ornamental Design Sheet Prisms



For reasons as given, we recommend for the greatest efficiency and best daylighting results, the 3 WAY or LUXFER Pressed Prism 4-inch Tiles built up into transom lights. Yet sometimes purchasers desire ornamental designs worked up with the sheet prisms, so we are prepared to fulfill their

requirements in the best possible manner with our superior sheet prism glass. We show here a few of the more popular patterns in this construction. As with the Pressed Tile Transoms, signs and ventilators can be inserted where specified. Order design by number.

3 Way—Luxfer Daylighting Details and Specifications, Page 34



DAYLIGHT Through Skylights and Sidewalk Lights Increases the Value of Any Building

BUILDING costs are high—so high that it is necessary for owners to get the use of every possible foot of space. Old buildings should be remodeled; new buildings should be planned to get the fullest use of their space by the introduction of ample *daylight*.

The one place where the addition of *daylight* means the greatest increase in values and usability of space is in basements and sub-sidewalk spaces. Usually dark, damp and forbidding, these can be easily and economically transformed into a pleasant and attractive sales or work-room by the use of *daylight*.

3 WAY—LUXFER Sidewalk Light constructions add so much usable space to any building at so small a cost that they should be installed in every new commercial building and should replace old types in all remodelling jobs. See pages 36 to 40 for details and specifications.

Light wells under big skylights are being closed up and the floors laid with 3 WAY—LUXFER Floor Lights. Thus the usable floor spaces are increased vastly, yet the spaces below are still flooded with daylight. The installation of 3 WAY—LUXFER Floor Lights in

balconies and mezzanine floors greatly increases the illumination of the spaces below.

Another place where 3 WAY—LUXFER daylight distributors give greatly added value to space is top floors and rooms under air or ventilating shafts. Many architects and builders have avoided the ordinary skylight installation and left the top floors dark because they have never found a type of construction that was permanent or that wouldn't "eat itself up" in up-keep cost. But now the 3 WAY—LUXFER constructions meet every need and answer every demand for permanent, weatherproof skylight construction.

Increase the value of your old buildings by letting *daylight* into the dark places—increase the value of the space in your new building by planning to have every inch so daylighted that it is income producing; and both at an economy in first cost and in up-keep cost. From every point of view you cannot afford *not* to install sidewalk lights or skylights of 3 WAY—LUXFER construction.

Details and
Specifications of
Sidewalk Lights and
Skylights
Pages 36 to 40

AMERICAN 3 WAY-LUXFER PRISM CO.

CICERO, ILL.

NEW YORK, N. Y.



3 Way—Luxfer Sidewalk Lights and Skylights Each an Ideal Installation

IN OUR quarter of a century of experience in the business of distributing daylight, we have developed a number of types of construction for both sidewalk, floor and skylight installations. Each of these fulfill in every detail the very rigid requirements we have set down as standard in each of our products. In sidewalk lights these are—

Large glass area. Great strength. Long life. Low up-keep. Ease of installation. Weatherproof.

Some have added features, such as replaceable glass, non-slip surfaces, etc.

On the following pages we describe, in detail, the advantages of each of the following types of sidewalk light construction. With this complete information before you, it is easy to select and specify the type most suited to the building under consideration.

SIMPLEX FRESNEL—4-inch square glass—71% glass area.

SIMPLEX Standard—3 $\frac{1}{8}$ -inch square or round glass.

SIMPLEX Screw Glass—3 $\frac{3}{8}$ -inch round glass.

SIMPLEX Countersunk Glass—2 $\frac{1}{2}$ -inch round glass.

3 WAY—LUXFER Reinforced Concrete—

Round or square glass—2 $\frac{3}{4}$ -in. glass.

All-glass under-surface—2 $\frac{3}{4}$ -in. glass.

PASCHALL Interlocking Vault Lights—2 $\frac{7}{8}$ -inch glass.

In addition to these various types of sidewalk lights, we have perfected a number of skylight installation constructions that have all of the features of the suc-

cessful sidewalk lights and, in addition, are a superior construction as a fire retardant.

These skylight and floor light constructions, as described on pages 25 to 28 and detailed on pages 35, 36 and 40 are:

SIMPLEX Skylight—6 $\frac{1}{8}$ -inch glass.

LUXFER 525A—12 $\frac{1}{2}$ -inch glass.

PASCHALL Interlocking Skylight.

The unusual success we have had with all of our present constructions for sidewalk and skylights is due to our extraordinary care in the selection of materials

and their assembling. In fact, we have found that the majority of the troubles that have in the past been handicaps are due to the materials used.

These have been principally the breaking of glass due to the expansion of the concrete and the very brittle glass, full of hidden faults, being unable to withstand the traffic and climatic changes. Therefore, we have studied and experi-

mented in our laboratories and shops until we have a perfected installation.

Now we have no such troubles and the reason is found in just five words, "re-ground cement" and "polariscoped Lazalite glass." Let us explain these in detail.

**Details and
Specifications of
Sidewalk Lights and
Skylights
Pages 36 to 40**



3 Way—Luxfer Reinforced Concrete Sidewalk Lights

The What and Why of Reground Cement

IN ALL 3 WAY—LUXFER sidewalk light and skylight construction we use REGROUND CEMENT *exclusively*. We adopted this policy because our tests proved that by doing so the glass breakage was reduced to a minimum and the entire mass of concrete made more homogeneous and waterproof.

Engineers' tests show that about 18% of ordinary cement is too coarse to pass through a screen of 200 meshes to the inch. This 18% is, as a rule, of such a nature that it does not get wet, in the mix, clear through.

After the concrete is set and the sidewalk light or skylight section is exposed to the weather, we have found that at any time from a few months up to several years the moisture of the rain and melting snows will be absorbed to the depth of $\frac{1}{4}$ to $\frac{1}{2}$ -inch. This saturation, together with the action of the air, in this time has slaked these large particles of cement aggregate and made them good cement. Then, when wet, these naturally crystallize and set, causing undue expansion within the mass. It is this internal expansion that



3 Way—Luxfer Sidewalk Lights

**Details and
Specifications of
Sidewalk Lights and
Skylights
Pages 36 to 40**

produces the great pressure that cracks the concrete and bursts the glass, as well as causing the slabs or sections to buckle up.

On the other hand, the Reground Cement which we use is so fine in texture that from 95% to 98% will pass through a 200-mesh screen. Because of this fineness, two results are secured. First, all of the cement—practically every particle—becomes saturated in the first mix so there are no raw granules to set later, causing internal expansion.

Second, the mass of the concrete is so homogeneous and compact that it is perfectly waterproof, thus preventing any moisture from penetrating the slab, even if there should be any unslaked particles in the mass.

Thus by the use of Reground Cement (200-mesh) *exclusively*, you are assured of an installation that will stay flat; that will not burst the glass; that will be waterproof and weatherproof. To be sure of satisfaction—long continued satisfaction—simply insist on 3 WAY—LUXFER sidewalk light and skylight construction, glazed with Lazalite polariscope tested glass, and made with re-ground cement (200-mesh) only.



Polariscope Tested Lazalite Glass



ALL glass used in 3 WAY—LUXFER construction—Pressed Prism Tile, Sidewalk Light Lenses and Floor Light and Skylight Lenses—are of the famous LAZALITE mixture. This is made without manganese and so will not turn pink or purple under action of the elements. But, in addition to using this superior glass, we require every piece of sidewalk light and skylight glass to be polariscope tested at the factory. This reveals the hidden stresses and strains that would, under service conditions, develop into cracks and shaling. The name "Lazalite" is pressed into every piece.

"Lazalite" glass is all annealed after formation so as to resist the action of expansion and contraction. In cooling an internal pressure develops that is uneven and this may produce stresses and strains that are faults in the glass.

Under the commercial polariscope, which is a scientific arrangement of lights and mirrors, these hidden stresses and strains appear as cloudy shadows or "rainbows." A piece of glass, clear and perfect to the eye, will be found, under the polariscope, to be full of faults.

So great is the percentage of faulty glass—glass that looks perfect but is not—that the manufacturers of Lazalite glass reject, under the polariscope test, an average of from 25% to 50% of all glass made. Occasionally an entire lot

is thus discarded. This is glass that formerly went into the construction and then later cracked or shaled in service.

In 3 WAY—LUXFER sidewalk light and skylight installations we use only perfect glass—that which has been proven so by the wonderful polariscope test.

When we use reground cement to prevent internal expansion—when we use only perfect lenses of Lazalite glass—is it to be wondered at that we claim that the 3-WAY—LUXFER constructions are, regardless of price, the finest that can be installed?

Our representative will be glad to demonstrate the action of the polariscope to you, if you request. Take no chances with sidewalk light or skylight installations. Specify "Lazalite Glass." That will insure your getting only polariscope tested perfect lenses, and to be sure of getting Lazalite glass, specify 3 WAY—LUXFER construction, now recognized as the world's standard.

**Details and
Specifications of
Sidewalk Lights and
Skylights
Pages 36 to 40**



Polariscoping Lazalite Glass

Simplex Fresnel Sidewalk Lights— The Ideal Installation



Simplex Fresnel Sidewalk Lights, South Bend, Ind.

SIMPLEX FRESNEL Construction satisfies every requirement of a perfect sidewalk light and floor light. It has great light area, great strength, perfect lenses of Lazalite glass (polariscoped), is easy to install, easy to replace glass broken by accident, and has long life of low up-keep.

As sidewalk lights are installed to daylight dark basements, the more glass in the installation the better the results. In SIMPLEX FRESNEL the glass surface approximates 71% of the opening. This is from 25% to 150% more than any other type of construction.

All glass is 4 inches square, spaced $\frac{3}{4}$ -inch apart. The formation is the scientific light-diffusing Fresnel lens. All glass is LAZALITE and every piece is polariscope tested to insure the use of only perfect lenses (see description on page 18). These 4-inch square lenses each transmit 160 candle power of daylight into the space below. Edges of all glass are coated with plastic malleable coating to provide a cushion for heat expansion and to keep the joint tight. See Lens No. 1, page 32.

Engineers' tests of Simplex Construction show that a section of SIMPLEX FRESNEL construction, supported on the two ends only, will carry a safe load of 2,420 pounds to the square foot on a 4-foot span; 935 pounds per square foot on a 6-foot clear span, and 561 pounds per square foot on a clear span of 8 feet. These are many times the traffic load that could be applied. Because of this

great strength no transverse supporting beams are necessary in use.

The space between the glasses is formed into a scientifically designed beam $\frac{3}{4}$ -inch wide and $2\frac{3}{8}$ inches in depth. This is reinforced transversely of the slab with specially shaped "I" bars $1\frac{1}{2}$ inches high with a $\frac{1}{8}$ -inch flange, weight 1.40 per foot. These are interlaced on the $4\frac{3}{4}$ -inch centers with $\frac{3}{8}$ -inch reinforcing rods at right angles to the "I" bars.

This grid of steel is built up in our factories, under ideal conditions, into a concrete slab with openings for the glass and the upper flange of the "I" bars uncovered. After putting this preformed slab in place on the job, the glasses are set and the top dressing (made of Reground Cement) is poured on and finished flush with the tops of the lenses; or we supply SIMPLEX FRESNEL in complete factory-made slab, ready to be set in place over the opening. The concrete in these slabs, as in all of our constructions, is made only with Reground Cement (200-mesh). Finished with Crystolux non-slip surface where specified.

These factory finished SIMPLEX FRESNEL slabs make the most satisfactory installation in small jobs, for they will provide the maximum of daylight with the minimum of preparation cost. Easily set by unskilled workmen.

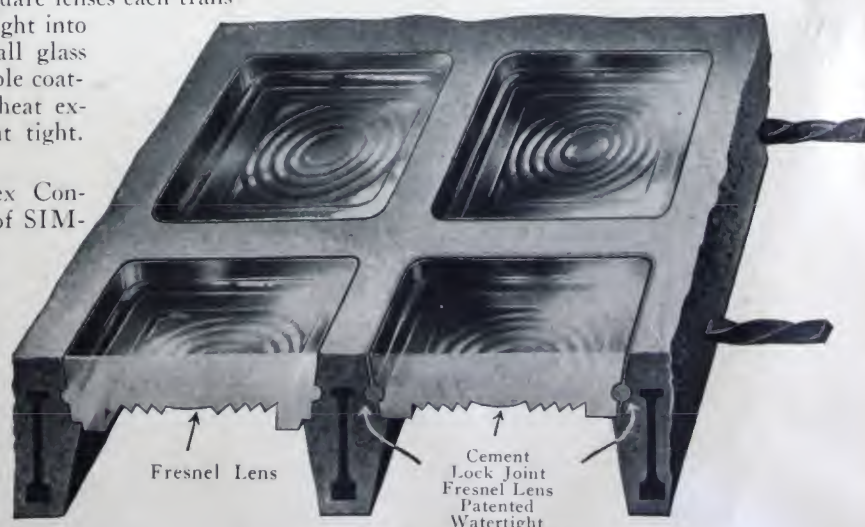
The underside of the Simplex slab being all glass, with smooth cement soffits, is so attractive that it needs no further finish.

Simplex Fresnel

Details and

Specifications

Pages 36 and 37



Cross Section Simplex Fresnel



Colonial Theatre, Chicago

REPLACEABLE GLASS

One other great advantage of the SIMPLEX Fresnel construction is that should a lens be broken by accident it is easily replaced, without chipping the cement. Replacement lenses (see page 32) are $\frac{1}{8}$ -inch smaller than the originals, so that it is easy to set them. In addition the originals are made with a head that leaves a groove in the concrete—to provide for the absolute waterproofing the joint, when the new lens is set.

Follow this simple process in replacing glass in all Simplex Constructions: After breaking out glass, clean hole, paint edges as well as edges of glass with thick white lead, fit glass into seat, and let harden. Or do the same with a half-and-half mixture of neat cement and soft sand.



Simplex Fresnel

Details and Specifications

Pages 35 and 37

Note details of SIMPLEX FRESNEL sidewalk construction on pages 35 and 37.

Made in preformed or factory-finished slabs to fit any opening.

Made by skilled workmen in our own factories.

Made with glass area of approximately 71% of sight opening.

Made only with reground cement (200-mesh).

Made only with polariscope tested Lazalite glass.

Made with cushion protected glass.

Made with 4-inch square Fresnel lenses.

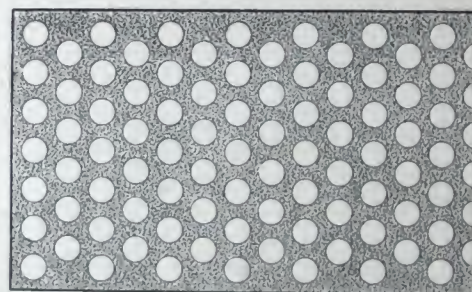
Spaced $4\frac{3}{4}$ inches.

Concrete reinforced longitudinally of slabs with $1\frac{1}{2}$ specially formed "I" bars, weighing 1.4 pounds per foot, and transversely with $\frac{3}{8}$ -inch deformed rods.

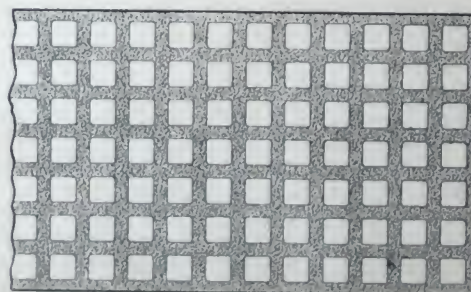
Needs no transverse supporting beams.

Finished with Crystolux non-slip surface where ordered.

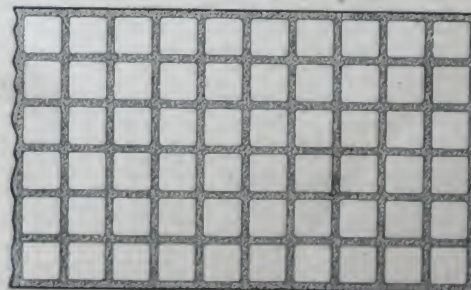
Simplicity itself to install. See directions on page 35.



$2\frac{3}{4}$ -in. Round Glass, $1\frac{3}{8}$ -in. Spacing
34.9% Glass 65.1% Concrete



$2\frac{3}{4}$ -in. Square Glass, $1\frac{3}{8}$ -in. Spacing
44.4% Glass 55.6% Concrete



4 in. Square Glass, $\frac{3}{4}$ -in. Spacing
71% Glass 29% Concrete

Simplex Standard Sidewalk Lights

THIS is a very popular type of installation because of its strength, ease of installation, long life and absence of up-keep expense and ease of replacing the glass.

Built in exactly the same manner as the Simplex Fresnel, this **SIMPLEX STANDARD** has lenses $3\frac{1}{8}$ inches in diameter, either square or round (see pages 32 and 33 for illustration). These are spaced $4\frac{1}{4}$ -inch centers, making the concrete spacing $1\frac{1}{8}$ inches wide. This is the narrowest of any construction except the Simplex Fresnel.

The preformed slabs and factory-finished slabs are made only of Reground Cement (200-mesh). They are reinforced transversely with $1\frac{1}{2}$ -inch specially shaped "I" bars, interlaced with $\frac{3}{8}$ -inch deformed rods. Thickness of the completed slab is $2\frac{5}{8}$ inches.

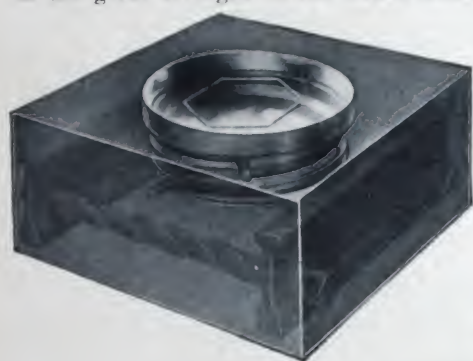
This construction has been tested for carrying capacity by the Robt. W. Hunt Co., and they report that 1,750 pounds per square foot on a 6-foot span, supported ends only, is a safe load. Because of the great strength of the **SIMPLEX** construc-



Simplex Standard on Michigan Boulevard Link, Chicago
tion no transverse supporting beams are needed in any of the installations.

Glass is all Lazalite quality, polariscoped. See page 18. Edges are protected with plastic malleable coating. The replacement lenses are $\frac{1}{8}$ -inch smaller than the original, so that broken glass can be replaced in a minute without chipping the cement top. Glass illustrated, page 33.

This can be supplied in preformed slabs, to be finished on the job or in completed slabs, ready to set in place over the sight opening



Simplex Screw Glass

This is a typical **SIMPLEX** construction, fitted with a $3\frac{3}{8}$ -inch round glass. Each glass has a threaded edge, fitted with a heavy wire that becomes imbedded in the concrete when the slab is made. If a glass is broken by accident, it is a simple matter to break out the glass with a hammer and screw in a new lens.

Glass is all Lazalite quality, polariscoped. Concrete is made only of reground cement (200-mesh). Glass illustrated, page 33. Strength is the same as the Simplex Standard Sidewalk Lights.

Simplex Countersunk Glass

Another regular **SIMPLEX** construction. This is designed and built for those floors and sidewalks, such as depots, shipping rooms, etc., over which there is heavy trucking. The lenses are $2\frac{1}{2}$ inches in diameter and each one is mounted in an iron ring in such a way that the surface of the glass is below the edge of ring. This protects it from the wheels of the trucks, etc. Lenses are plain, of Lazalite glass, polariscoped; easily replaced. Concrete is made of Reground Cement only (200-mesh).

Strength of slab is same as **SIMPLEX** Standard Construction.

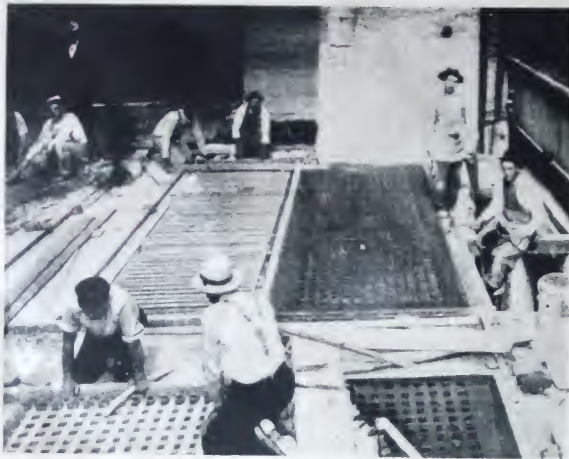


All **SIMPLEX** Sidewalk Lights finished with Crystolux, non-slipping surface where specified.

All these constructions are either installed by our own skilled workmen, supplied in preformed slabs or in completed slabs, ready for instant installation. West of Rocky Mountains, **SIMPLEX** Constructions are furnished in factory-finished slabs only.

**Details and Specifications in these
Simplex Constructions
Pages 35 and 37**

3 Way—Luxfer Reinforced Concrete Sidewalk Lights— Ransom Construction



THIS type of sidewalk light construction has been and is one of the most popular with architects, contractors and owners. Meeting, as it does, practically all of the sidewalk ordinances of every city, it has been recommended and installed for a quarter of a century by the leading vault light manufacturers.

3 WAY—LUXFER installations have a perfect, smooth surface that harmonizes with the balance of the walk. Glasses are evenly spaced and the complete effect is extremely pleasing.

In addition to our care in construction, using the proper size and shaped reinforcing so spaced as to give the most satisfactory results, we mix all of our concrete with reground cement (200-mesh) *exclusively*. See page 17 for description. All glass is "Lazalite" quality with edges protected with plastic malleable coating. Every piece is proven perfect by the polariscope, as described on page 18.

This construction can be built on the job by our own skilled workmen where

the installation is large enough or it can be supplied for smaller jobs in

3 Way—Luxfer Ready-to-Set Slabs

These factory made slabs are ideal for those who wish to install the work themselves and those located at such distant points that it would not pay to have our skilled men care for the installation.

Glasses in 3 WAY—LUXFER Reinforced Concrete construction are illustrated and described on pages 32 and 33.

All Glass Under Surface

This construction has found favor in some types of installation. Its chief advantage is that it presents a particularly pleasing appearance on the underside for none of the concrete shows. It is one complete surface of glass from end to end, therefore perfectly sanitary and easily cleaned. For floor lights in hospitals, lights over barber shops and public baths, this feature is especially attractive.

We can supply this construction in either factory-made slabs or build it up on the job. See details and specifications on page 40. Glass shown on pages 32 and 33.

**Details and
Specifications of
3 Way—Luxfer
Reinforced Concrete
Construction
Pages 38 and 39**



Typical 3 Way—Luxfer Reinforced Concrete Slab



Tiffany Bldg., New York

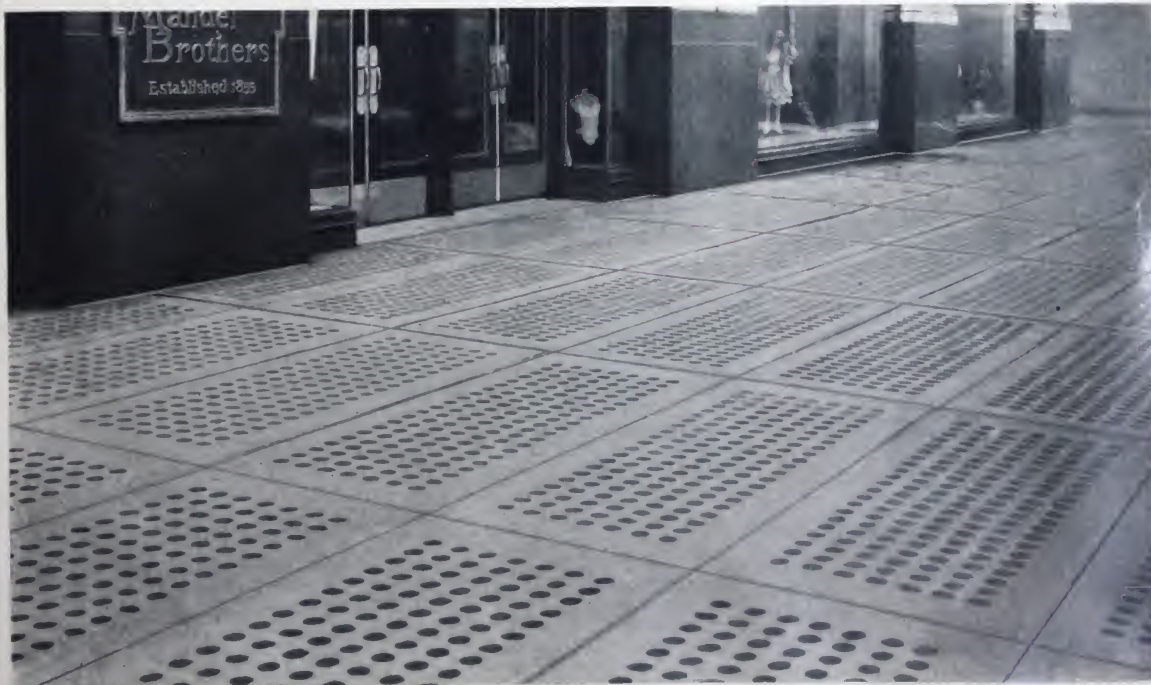


Union Special Machine Co., Chicago

Note the advantages of this construction:
 Made to exact size to fit the opening.
 Made to meet any specifications.
 Made by skilled workmen in our own factories.
 Made under ideal conditions.
 Made only with reground cement (200-mesh).
 Surfaced with Crystolux when specified.
 Made with only Lazalite glass, polariscoped.
 Made with cushion protected glass.
 Reinforced with $\frac{3}{8}$ -inch rods both ways.
 Spaced $4\frac{1}{4}$ -inch centers.
 Glass used as standard, $2\frac{3}{4}$ -inch round or square.
 Nos. 1, 2, 6 and 7 (see pages 32 and 33).
 Needs no skilled labor to set.
 Saves contractor and owner time and labor.
 Weighs about 25 pounds per square foot.

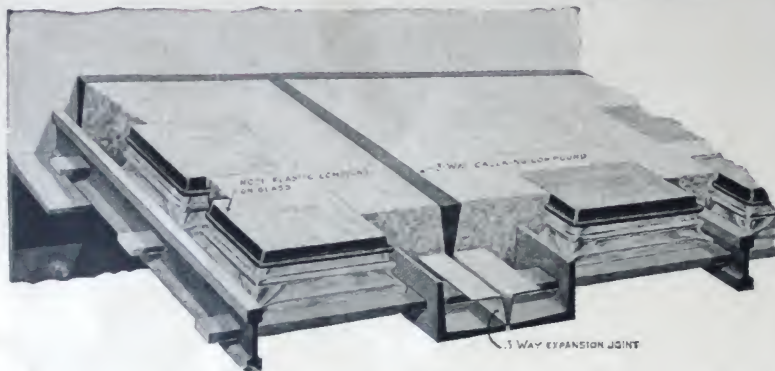
Should not be ordered in slabs larger than 25 square feet to avoid damage in transit.
 Simplicity itself to install—slip the slab out of its crate into its seat over the opening, insert expansion joint caulk with Tytelite and the job is done. See page 29 for instructions.

**Details and Specifications of
 3 Way—Luxfer Reinforced
 Concrete Construction
 Pages 38 and 39**



3 Way—Luxfer Round Glass Reinforced Concrete at World's Busiest Corner, State and Madison Streets, Chicago

Paschall Interlocking Vault Lights—"Knock Down" Construction



Detail of Paschall Interlocking Vault Light Construction

THIS is an ideal built-up-on-the-job construction. It is especially advantageous when working on a speed basis, for it can be assembled and installed without any delays.

A grid of steel is made at the factory. This is composed of specially shaped "I" bars interlocked with 1-inch by 1/4-inch flat bars. The "I" bars are spaced 4 7/8-inch centers and the flats 4 1/4 inches.

On the job, this grid is placed over the opening, the glass set on the flat bars, between the "I" bars and the concrete top, poured over and worked down around the glass and steel, binding them all together into one mass and making a perfectly smooth walking surface.

Lenses are 2 7/8 - inches, square top. They are made of the famous Lazalite glass, polariscoped for hidden faults. Coated on the edges with 3 WAY plastic malleable coating. See pages 32 and 33 for details of glass. Steel is furnished in Meeker galvanized finishes, making further attention to the underside unnecessary.

ing beams are necessary.

Surface can be finished with "Crystolux" non-slip surfaces. See page 29.

**Details and
Specifications
Paschall Interlocking
Vault Light
Construction
Pages 38 and 39**

Because of the simplicity of this construction and its ease of installation it can be set by ordinary sidewalk men. Skilled workers in vault-lights are not needed.

Any unskilled laborer can set the grids and place the glass and the cement men fill in the concrete and finish the top. No staging or false work needed.

On page 39 are detailed various methods of preparing the bearings.



Paschall Interlocking Vault Light Construction, State Street, Chicago

Simplex Skylights

ORDINARY metal and glass skylights rust out, rot out and fail after a few years of service, and during this time they have been a constant source of worry and expense in keeping them water-tight and in repair. Wire protecting screen and metal need constant paint, the sash need repainting. On the other hand, the **SIMPLEX SKYLIGHT**, once installed, needs no attention except in case of accident and then only a few minutes. It is practically everlasting and its daylight area is greater than any other type for no light-obstructing supporting beams are needed. Nor does it require a protecting screen.

The **SIMPLEX SKYLIGHT** is fire-resisting, burglar-proof, has such great strength that snow loads cause no worry, and once installed, is in place indefinitely, with practically no up-keep. The appearance of the undersurface—all glass with concrete soffits—is so pleasing that no other finish is needed.

As floor lights, the **SIMPLEX SKYLIGHTS** are excellent. They have great light area, great strength, are attractive and glass is easily replaced if broken by accident or abuse.



Simplex Construction, Flat Skylight, Showing Method of Preformed Slab Installation.

The **SIMPLEX SKYLIGHT** is a reinforced concrete construction of the same type as the Simplex Sidewalk Lights, except that the lenses are larger and the reinforcing wider spaced. One and one-half inch specially formed "I" bars are interlaced with reinforcing rods, each on $7\frac{1}{2}$ -inch centers. The lenses are $6\frac{1}{8}$ inches square and the spaces between them is $1\frac{3}{8}$ inches wide on top. This spacing strip, imbedding the steel, is $2\frac{5}{8}$ inches thick. Because of the weight of the steel, its shape and form of the concrete, this **SIMPLEX SKYLIGHT** is so strong that spans up to 8 and 9 feet can be put in without transverse supporting beams. In fact, the skylight pictured below has 9-foot spans between bearings and is 165 feet long.

This skylight was installed over a light court between the two wings of a ten-story building. This gave a big working space, perfectly lighted, to the firm oc-



Underside of Simplex Skylights

Simplex Skylights

Details and Specifications
Pages 35 and 36



Simplex Skylight, Calumet Exchange, Chicago Telephone Co.

cupying the adjoining floor. After three years the only repairs, according to the engineer, is the replacement of two lenses broken by an outside accident.

To prove the great strength of the SIMPLEX SKYLIGHT construction, we commissioned the Robt. W. Hunt Co. to make strength tests of various length slabs. They report a carrying capacity, on an 8-foot span, of 950 pounds per square foot. Hence, there is no need of transverse supporting beams.

SIMPLEX SKYLIGHTS are built up on the grid of steel into preformed slabs, at the factory; just as the SIMPLEX sidewalk lights are. This concrete is made only of reground cement (200-mesh), as described on page 18. This eliminates entirely the danger of internal expansion and makes the concrete waterproof.

The glass in the SIMPLEX SKYLIGHT is $6\frac{1}{8}$ inches square and $\frac{3}{8}$ -inch thick—heavy enough to be walked on with safety. This is made of the famous "Lazalite" glass that does not turn color under action of the elements. Every piece is polariscoped to insure the use of only perfect lenses. Edges are coated with 3 WAY plastic malleable compound to insure the closeness of the joint between the

glass and concrete. Glass No. 71 as described on page 33.

Glasses broken by accident or abuse can be quickly replaced without chipping the cement. The replacing lens is $\frac{1}{8}$ -inch smaller than the original. The bead on the edge of the original leaves a groove in the concrete which is filled with packing when replacement lens is set.

Simply set a new lens in the hole left by the old glass and fill the old glass and fill the joint as described on page 20.

As the entire underside is glass and concrete—with no metal exposed—this installation is ideal in depots and chemical plants; in fact, everywhere fumes may attack metal. In the Union Depot at Kansas City there are nearly 4 acres of Simplex Skylight.

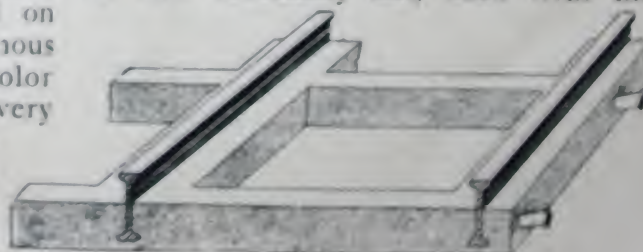
After the most exhaustive tests the engineers selected SIMPLEX Skylights for the new D. L. & W. station in Buffalo. The Union Station, St. Paul, Minn.; the Union Station, Dallas, Tex.; Michigan Central Depot, Detroit, Mich., are all users of thousands of feet of SIMPLEX SKYLIGHTS because of the great strength, great light area, and absence of upkeep expenses.

Because of the heavy type of construction these skylights act as fire retardants.

The SIMPLEX SKYLIGHT may be laid absolutely flat, flush with the

Simplex Skylights

Details and
Specifications
Pages 35 and 36



Details of Simplex Skylight Construction



Marquee of Union Station, Dallas, Texas

roof, but we recommend raising it on a coping and, better still, to use the gable or "doghouse" type. Because of the extremes of temperature to which a skylight is exposed, this type gives greater opportunity for the natural expansion and contraction than the flush flat types.

For small skylights the **SIMPLEX SKYLIGHT**, in factory finished slabs, offers an ideal installation. The contractor can build up his foundation as shown in the detail on page 36; set the complete finished slab or slabs in place over the opening, and caulk the joints; then the skylight can be forgotten.

The joints between the slabs should be fitted with 3 WAY Expansion Joints and then caulked with Tytelite to insure their long-continued watertightness. (See page 35.)

Simplex Skylights

—
Details
and Specifications
Pages 35 and 36

Marquees and Awnings

Because of the great glass area and the great strength of **SIMPLEX SKYLIGHTS**, they are unusually well adapted to use in marquees and sidewalk awnings. There is scarcely any up-keep required, either, for the ever-lasting weatherproof qualities, above and below, make them permanent. And the pleasing appearance of the undersurface adds to the beauty of the most elaborately ornamental construction. For installation instructions see page 36 under heading of skylights.

Extension Skylights

The **SIMPLEX** construction is the most satisfactory for extension or lean-to skylights. Because of its strength; because of its great light area; because of the absence of danger from anything breaking through; because of the absence of any supporting beams; because it really is part of the masonry of the building, it gives the greatest measure of satisfaction both in initial cost and in maintenance cost.

On page 36 are detailed various types of skylight construction.



Simplex Skylight, Borland Bldg., Chicago

3 Way—Luxfer Reinforced Concrete Floor Lights and Skylights



Details of 3 Way—Luxfer
Floor light No. 925

THIS construction, in addition to being used for roofs, floors and skylights, is admirable for installing in domes of any style. Its flexibility makes it easily adaptable to surfaces in any form.

Composed of heavy "Lazalite" glass units (polariscoped) $6\frac{1}{2}$ inches square by $1\frac{1}{4}$ inches thick and set in concrete made of reground cement and reinforced with twisted tension rods, this makes a very strong construction that will meet practically every traffic or construction requirement. Glass is all cushion projected. Built up on the job by us or shipped in factory finished slabs, ready to set. See page 40 for details.

3 Way—Luxfer Metal Set Skylights

Prism Extension Skylight

On page 11 we described the advantages of the extension skylight on 3 WAY—LUXFER prism construction. In this the tiles, pressed of "Lazalite" glass

(polariscope as described on page 17) are 13 inches square. These are mounted in heavy glazing bars set in putty. After the prisms are set, the ribs are capped, these caps being bolted to the ribs and lapping over the water table on each side of the prism and thus establishing an absolutely water-tight joint. When required, these extension skylights can be equipped with a vent sash that is self-closing and weather-tight when closed. Accepted by the underwriters for use without a protecting screen.

**3 Way—Luxfer
Reinforced Concrete
Skylights
Page 36**

Paschall Interlocking Skylight Construction

This is the same construction as the Paschall Interlocking Vault Light construction except that the glass is 6 inches square.



Paschall Interlocking Skylight

3 Way—Luxfer Specialties

Tyte-Lite Caulking Compound

TYTE-LITE is a caulking compound that meets every demand of contractor, architect and owner. It is easy to apply, does not get hard and leak and needs no after attention.

We have examined installations five years old that were caulked with TYTE-LITE and the compound was still soft and plastic.

There really is no reason why it should not stay soft and joint filling indefinitely, requiring no greater attention than an occasional inspection. In sidewalk light installations, the TYTE-LITE should be covered with a coating of 3-WAY Special Compound to prevent sticking to shoes or being tracked out.

TYTE-LITE is sold in 10 and 25-pound containers and by the barrel. Write for instructions and prices.



3 Way Metal Expansion Joint



This U-shaped zinc strip, with upturned edges, is to be placed between the slabs of reinforced concrete sidewalk lights, slipping the edges into the groove provided, or to be set between the lower sections of the SIMPLEX preformed slab so that

the edges are buried in the concrete top. When the concrete is set, this expansion joint is packed with TYTE-LITE and the joint is absolutely watertight. Note that the shape of this joint is such that it is almost impossible for the compound to be forced out by expansion pressure.

3 Way Special Caulking Compound

This is an improved asphaltic compound, the best that our years of experience has found. For those who, in installing their own work, or in recaulking old jobs, will find this superior to any similar compound on the market. But it is in no way equal in results to TYTE-LITE, but is less expensive.

Crystolux Non-Slip Surface

To overcome the slipperiness of the glass in sidewalk light installations, we finish the surface of the concrete, when specified, with CRYSTOLUX. This is a very hard, abrasive substance that will hold its roughness indefinitely. All sidewalks on a slope should be surfaced with CRYSTOLUX. We sell CRYSTOLUX to contractors to use in surfacing their sidewalks and we finish our factory-made slabs with it when ordered.



To Make Joints Watertight

All joints in sidewalk lights should be from $\frac{3}{8}$ to $\frac{3}{4}$ -inch wide, depending upon the climate and the latitude.

Thoroughly clean the joint and have it practically dry. Put a light strand of Oakum or Caulking Cotton in the bottom of the joint to prevent leakage if there are any large crevices. Then half fill the joint with TYTE-LITE, using a pointed trowel. We have found this the most practical for the material is very sticky. After joint is approximately half filled it should be leveled off with a flat stick the width of the joint. On top of the TYTE-LITE place a thin layer of Oakum or Caulking Cotton, well pressed down on the TYTE-LITE. **DO NOT DRIVE**—only press. Fill the joint to the top with 3-WAY Caulking Compound, poured in hot.

For skylights, after putting in the strand of Oakum or Caulking Cotton, fill the joint with TYTE-LITE and tamp in a little plastering sand on top to prevent running.

We have found that where properly done, according to these instructions, the job will be absolutely tight and remain so indefinitely without further attention.

3 Way-Luxfer Sidewalk Doors

OUR Sidewalk Doors comply with all city ordinances, being flush, attractive in appearance and very durable.

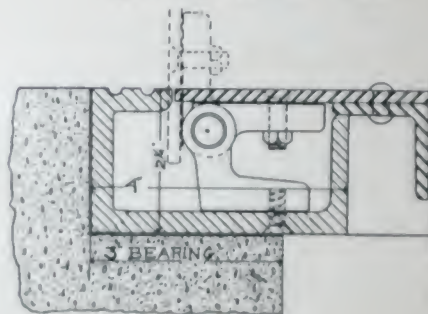
Type "C" Flush Watertight Sidewalk Door



This door has a $4\frac{1}{4} \times 2\frac{1}{4}$ -inch steel channel frame, welded at corners, making a strong, rigid frame, there being no rivets or splice plates to work loose. This frame is bored and tapped for drain pipe connection. The large gutter is of ample size to provide for all drainage. Heavy brass hinges are imbedded in the gutter; $\frac{3}{16}$ -inch steel plate is used for leaves. Leaves are reinforced on underside with rigid stiffening frame of steel $1\frac{3}{4} \times 1\frac{3}{4} \times \frac{3}{16}$ -inch angle. Entire

construction has a thickness of $2\frac{1}{4}$ -inch. Self-Locking Device on all doors. Made with Illuminated, Diamond or Plain Steel Tops. Angle shoes will be supplied when ordered. Doors 5 x 5 feet or under can be operated without worm gear operating device, but larger doors should be so equipped. Supplied in all sizes.

We also manufacture a type "D" door, same construction thruout as type "C," excepting that frame is of cast iron in place of steel. Write us for prices and details.



Specifications

All sidewalk doors or coal hole covers as shown on plans to be 3 WAY—LUXFER Flush Steel Doors, type "C," as manufactured by American 3 Way—Luxfer Prism Co. Size over-all to be as shown on plans. Leaves to be _____ (diamond top, plain steel or illuminated top).



Type "F" All Steel Flush Door

A flush, inexpensive, all-steel door and a favorite where watertight features are not strictly required. Made with $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ -inch steel angle frame riveted at corners. Leaves of $\frac{3}{16}$ -inch steel, either Diamond Pattern or Plain Steel, can be supplied. Fitted with bolt, lock chain and bar. Supplied in all sizes. Write us for further details and prices.

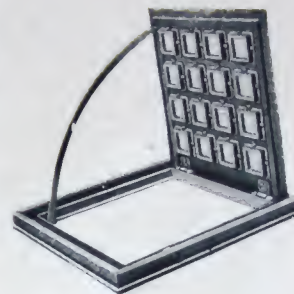


Type "A" Coal Hole and Ventilating Door

A standard type of coal door used in sidewalk construction, also a favorite as a ventilating Door. Made with 3-inch cast iron gutter frame, 2½ inches deep, provided with drain tap connection, equipped with quadrant and self-locking device. Steel grating for use in door when open can also be supplied. Note the details. Made in the following standard sizes:

| Over-all Size | Clear Opening |
|---------------|---------------|
| 20 x 12 | 14 x 6 |
| 20 x 20 | 14 x 14 |
| 24 x 24 | 18 x 18 |
| 28 x 28 | 22 x 22 |

Can be supplied with either Illuminated, Diamond or Plain Steel Top.



3 Way Coal Hole Covers

3 Way Standard Cast Iron Cover



Made with close joint and solid seat in ring. Diamond top. All covers supplied with counter-sunk lift rings; fastening bar and thumb screw. Approved by city authorities.

| Size | Weight |
|--------|---------|
| 16 in. | 27 lbs. |
| 18 in. | 33 lbs. |
| 20 in. | 45 lbs. |
| 24 in. | 65 lbs. |

3 Way Flush Round Cover With Extra Lights



These extra light covers are often used in small installations where there is need of only a limited amount of light.

| Diameter | No. Glasses |
|----------|-------------|
| 16 in. | 19 |
| 18 in. | 19 |
| 20 in. | 31 |
| 24 in. | 37 |

3 Way Standard Cast Iron Cover with Lights



These are the same as the regular covers, except that each is fitted with a row of round glasses

| Diameter | Weight | No. Glasses |
|----------|---------|-------------|
| 16 in. | 27 lbs. | 6 |
| 18 in. | 32 lbs. | 9 |
| 20 in. | 46 lbs. | 12 |
| 24 in. | 65 lbs. | 12 |

3 Way Flush Concrete Covers With Ventilators



The same construction as the concrete coal hole covers with extra lights. In place of the light glasses we install small cast iron vents with cross bars.

| Diameter | No. Ventilator |
|----------|----------------|
| 16 in. | 19 |
| 18 in. | 19 |
| 20 in. | 31 |
| 24 in. | 37 |

3 Way Standard Cast Iron Cover With Extra Lights



| Diameter | Weight | No. Glasses |
|----------|---------|-------------|
| 16 in. | 26 lbs. | 30 |
| 18 in. | 31 lbs. | 36 |
| 20 in. | 45 lbs. | 54 |
| 24 in. | 62 lbs. | 60 |

3 Way Cast Iron Rings



The rings are very carefully molded and cast so that they fit accurately all Standard 3 Way Covers. Made with shallow and deep seat.

| Size of Cover | Weight |
|---------------|---------|
| 16 in. | 21 lbs. |
| 18 in. | 25 lbs. |
| 20 in. | 33 lbs. |
| 24 in. | 38 lbs. |

3 Way Flush Concrete Cover With Lights



A very desirable cover to use in a concrete walk. Lies flush with the walk. Strongly made and will stand hard usage.

| Diameter | No. Glasses |
|----------|-------------|
| 16 in. | 7 |
| 18 in. | 7 |
| 20 in. | 12 |
| 24 in. | 13 |

3 Way Cast Iron Thimbles



The 3-Way cast iron thimbles are made in the same sizes as the rings and are to be used where protection to the sides of the hole is needed. Molded with both deep and shallow seat. Thimbles are 4 inches deep.

| Size of Cover | Weight |
|---------------|---------|
| 16 in. | 41 lbs. |
| 18 in. | 49 lbs. |
| 20 in. | 55 lbs. |
| 24 in. | 71 lbs. |

Design of 3 Way—Luxfer Glass

FOR SIDEWALK LIGHTS AND SKYLIGHTS

The glass is designed to give the greatest diffusion of daylight consistent with the demands of the construction itself.



3 WAY—LUXFER No. 1 is the standard square lens, for diffusing light to space directly below and immediately adjacent thereto. It is the most popular glass for general service. It is used in our Reinforced Concrete Construction as shown on page 22. It is $2\frac{3}{4}$ -in. square and $1\frac{9}{16}$ -in. deep.

3 WAY—LUXFER No. 2 is the standard square three-point prism glass for refracting light downward and back into basements; it is designed with a series of three prisms set at different angles so as to give the best results. Is used in our Reinforced Concrete Construction as shown on page 22. It is $2\frac{3}{4}$ -in. square and $1\frac{9}{16}$ -in. deep.



3 WAY—LUXFER No. 6 Glass is the standard Multiple Prism for refracting light downward and back into basements; it is designed with a series of small prisms set so as to give the best results. Is used in our Reinforced Concrete Construction as shown on page 22. It is $2\frac{3}{4}$ -in. square and $1\frac{9}{16}$ -in. deep.

3 WAY—LUXFER No. 7 Glass is the standard round glass for the same purpose as the No. 1. Is used in our Reinforced Concrete Construction as shown on page 22. It is $2\frac{3}{4}$ -in. diameter and $1\frac{9}{16}$ -in. deep.



3 WAY—LUXFER No. 10 Glass is the standard glass used in all Illuminated Tops on Sidewalk Doors. It is $2\frac{3}{4}$ -in. square and $\frac{7}{8}$ -in. deep.

3 WAY—LUXFER No. 27 Glass is the standard glass for all under-surface Glass Construction. It is 4 inches square with a base measurement of $4\frac{1}{8}$ in. and 2 in. deep. Construction described on page 22.



3 WAY—LUXFER Countersunk Glass, plain lens, $3\frac{1}{2}$ inches in diameter. Supplied with or without ring. Described on page 21.

3 WAY—LUXFER No. 31 Fresnel Lens Glass is the standard glass for Simplex Fresnel Construction as shown on page 19. It is used for a broad uniform diffusion, the Fresnel lens formation resulting in materially greater light diffusion. It is 4 inches square and $1\frac{3}{8}$ -in. deep.





3 WAY—LUXFER No. 43 plain lens is standard for our Paschall Interlocking Vault Light Construction as shown on page 24. It is a plain glass $2\frac{7}{8}$ in. square and $1\frac{5}{16}$ in. deep.

3 WAY—LUXFER No. 44 Prism Glass is standard for our PIVL Construction as shown on page 24. It is a three-point prism glass $2\frac{7}{8}$ -in. square and $1\frac{5}{16}$ -in. deep.



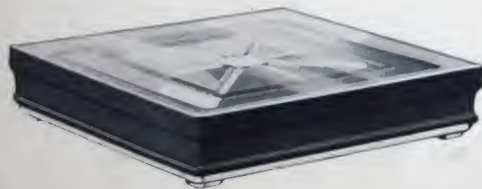
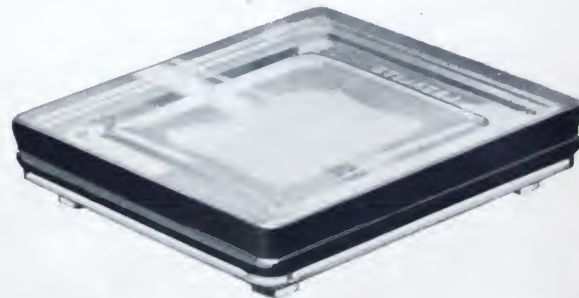
3 WAY—LUXFER No. 61 Glass is the standard square plain glass for our Standard Simplex Construction as shown on page 21. It is $3\frac{1}{8}$ in. square and $1\frac{1}{4}$ in. deep.

3 WAY LUXFER No. 62 Glass is the standard square three-point prism glass for our Standard Simplex Construction as shown on page 21. It is $3\frac{1}{8}$ in. square and $1\frac{1}{4}$ in. deep.



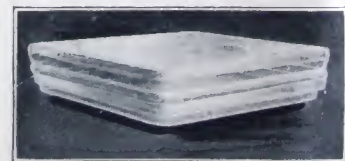
3 WAY—LUXFER No. 68 Glass is the standard round plain glass for our Standard Simplex Construction as shown on page 21. It is $3\frac{1}{8}$ in. diameter and $1\frac{3}{16}$ in. deep.

3 WAY—LUXFER No. 71 Glass for Simplex Skylight Construction as shown on page 25. Is the ideal light diffuser for Skylight Construction. This glass is $6\frac{1}{8}$ in. square and $1\frac{3}{16}$ in. deep.



3 WAY—LUXFER No. 98 Glass is used in our Standard Reinforced Floor and Skylight as shown on page 28. It is $6\frac{1}{2}$ in. square and $1\frac{5}{16}$ in. deep.

3 WAY—LUXFER No. 137 Glass for Paschall Interlocking Skylight Construction as shown on page 28 is the standard square plain glass for this form of construction. It is 6 in. square and $1\frac{5}{16}$ in. deep.



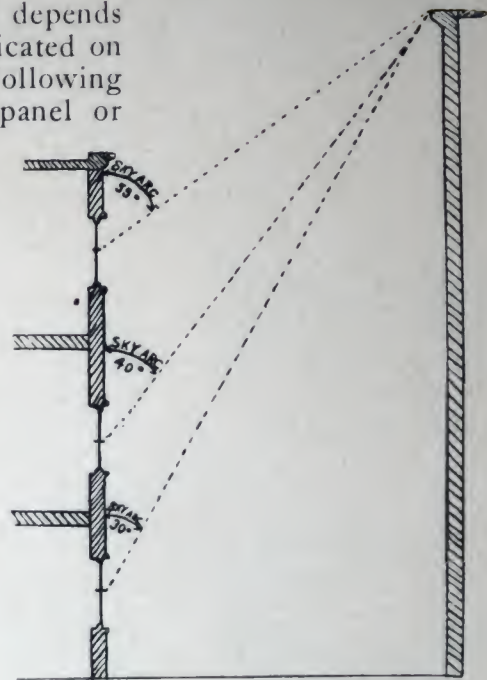
3 WAY—LUXFER No. 80 Glass for screw replacement, in Simplex construction. Made with threaded edges. Can be supplied either with or without wire as shown on page 21. It is $3\frac{3}{8}$ in. round with hexagon center to facilitate screwing on from below.

We show no pendant prisms because we have found them unsatisfactory in service. However, we can supply them when ordered.

Data for Ordering 3 Way—Luxfer Prisms

As the proper daylighting of dark interiors depends upon the use of the correct prism angle, as indicated on the diagram here shown, we must have the following information before building up the transom panel or supplying the sheet prism glass:

- | | |
|--|---|
|No. of lights. |Any bay windows overhanging the location of prisms. |
|Height. | |
|Width. | |
|Width of room. | All lights glazed with ornamental border of dew-drop tile or Luxfer design unless otherwise specified. If tinted border or Lenticular or Spirallite Diffusing Tile desired, specify such. |
|Length of room. | |
|Exposure (No., So., E., W.) | Specify whether 3 WAY or LUXFER Tile are wanted. |
|Distance from top of window to floor. | Bent and tilted prisms quoted special. |
|Distance from top of window to ground. | Measurements: Always give width first, then height of opening. |
|Height of ceiling. | |
|Width of street to the building opposite. | |
|Height of building opposite location of the prisms. | |
|Reveal. If glass is not flush with face of building how much is it set back? | |



Specifications

FOR PRISMATIC TILE TRANSOMS AND WINDOWS: All windows and transoms marked on drawings "prismatic glass" shall be (3 Way—Luxfer) 4 inch pressed prism tiles of the angle indicated by the needs of the location. These shall be set in electro copper plated bar mounting, formed into sash as shown. Ornamental border of (Dew Drop—Luxfer Design) tile shall be inserted. (Or Diffusing Tile of..... Design shall be used as a border.) All shall be as manufactured and built up by the American 3 Way—Luxfer Prism Co.

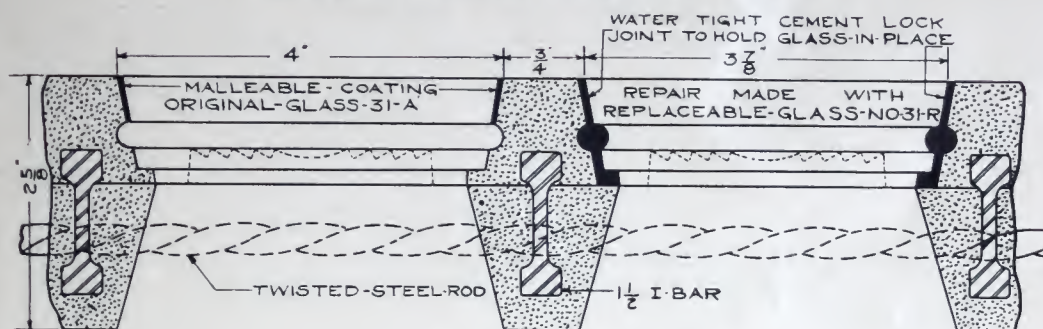
SHEET PRISM GLASS: The windows and transoms marked in the drawing "prism glass" shall be glazed with sheet prism glass in single panes, of the proper angle as indicated by the needs of the location. (Glass shall be wired to withstand fire assault.) All as manufactured and sold by the American 3 Way—Luxfer Prism Co.

ORNAMENTAL SHEET PRISM: Window sash and Transom lights marked on the drawings "prism glass" shall be glazed with sheet prism glass cut and mounted in ornamental design No..... (see page 13) or as shown on drawing. Mounting to be electro copper plated glazing bars, made up into sash as shown. All as manufactured and built up by the American 3 Way—Luxfer Prism Co.

SIGNS: As indicated by drawings, transoms shall be built up of 3 WAY or LUXFER Pressed Tile with firm name, business or location incorporated in ornamental glass of colors as indicated. This shall be the same construction as specified for the regular prismatic tile transoms. All as manufactured and built up by the American 3 Way—Luxfer Prism Co.

Architect's Details and Specifications

Simplex Fresnel Sidewalk Lights



Cut 1/2 Actual Size

Sidewalk Lights where shown on plans to be reinforced Concrete type with no exposed metal, using 1 1/2 in. channel flats with 3/8 in. reinforcing rods at right angles to channel flats. They shall have a tested carrying capacity of not less than three hundred (300) pounds per square foot on a five foot clear span, supported on two ends only, figuring on a factor of safety of four.

Glass to be "Lazalite" quality as manufactured by the Jeannette Glass Company, guaranteed by the manufacturers to be free of manganese and without stresses and strains, each piece having stood polariscope test.

Side walls to have a plastic malleable coating to form a cushion protection for expansion. Glass to

be of replaceable type, so as to permit of any replacement without defacing the surface of concrete.

All glass to be four inches square, spaced on not more than 4 3/4 in. centers.

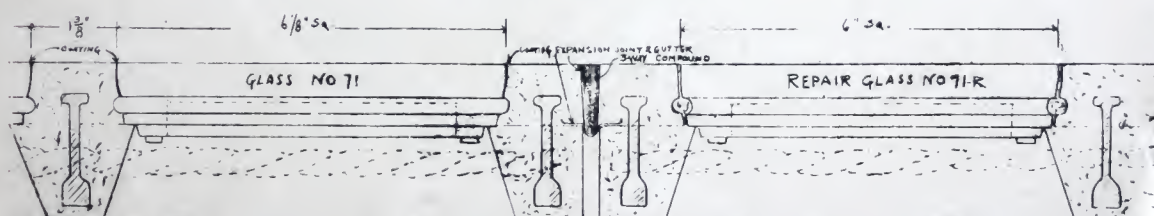
Cement must be reground to the extent of permitting 95% to pass through a two hundred mesh sieve.

Caulk all joints around and between sidewalk lights with Tyte-Lite.

Work to be set by manufacturers own experienced workmen, or in complete factory finished slabs.

All as furnished by American 3 Way—Luxfer Prism Company or other approval equal.

Simplex Skylights



Cut 1/2 Actual Size

Skylights where shown on plans to be Reinforced Concrete type with no exposed metal, using 1 1/2 in. channel flats with 3/8 in. reinforcing rods at right angles to channel flats. It shall have a tested carrying capacity of not less than two hundred fifty (250) pounds per square foot on a five foot clear span, supported on two ends only, figuring on a factor of safety of four.

Glass to be Lazalite quality, as manufactured by the Jeannette Glass Company, guaranteed by the manufacturers to be free of manganese and without stresses or strains, each piece having stood polariscope test.

Side walls to have a plastic malleable coating to form a cushion protection for expansion. Glass to

be of replaceable type, so as to permit of any replacement without defacing the surface of the concrete.

All glass to be 6 1/8 inch square, spaced on not more than 7 1/2 inch centers.

Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred mesh sieve.

Caulk all joints around and between prismatic skylights with Tyte-Lite.

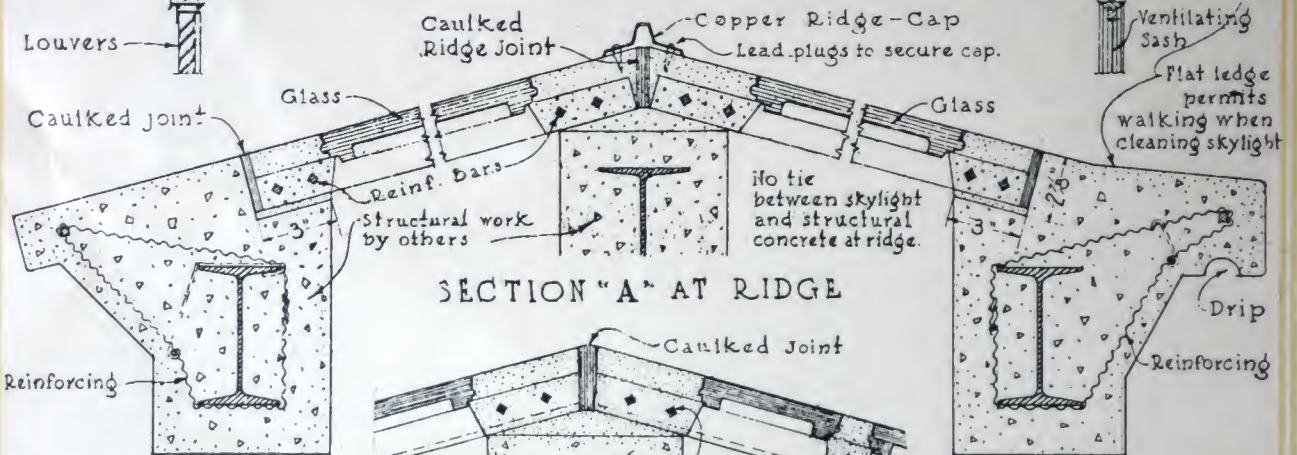
Work to be set by manufacturers' own experienced workmen.

All as furnished by American 3 Way—Luxfer Prism Company or equal.

NOTE.

ON THIS SIDE IS SHOWN SINGLE-SLAB SKYLIGHT EXTENDING FROM EAVE TO RIDGE, IF DISTANCE IS NOT GREATER THAN 9'-6"

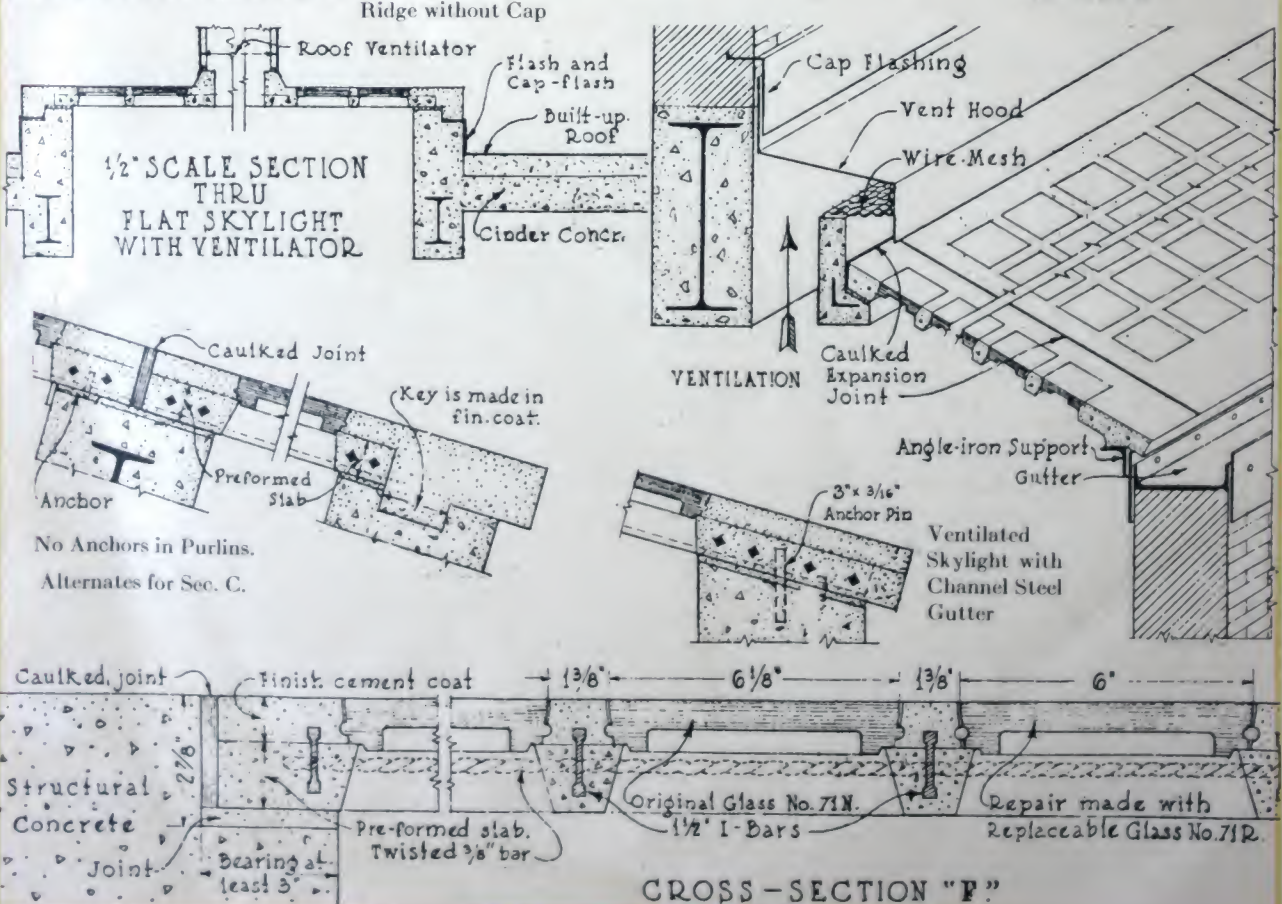
DIAGRAM SECTION SHOWING TYPICAL "3-WAY" SKYLIGHT SLABS



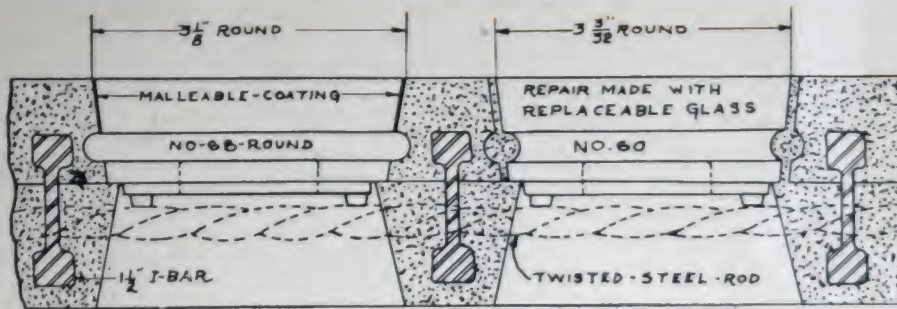
SECTION "A" AT RIDGE

SECTION "B" AT EAVE
ALTERNATE CONSTRUCTION

SECTION "C,"
AT EAVE



CROSS-SECTION "F"



Standard Simplex Sidewalk Light Construction

Round or Square Glass

Sidewalk Lights where shown on plans to be Reinforced Concrete Construction with no exposed metal using 1½-inch channel flats with 3⁄8-inch reinforcing rods at right angles to channel flats. They shall have a tested carrying capacity of not less than three hundred pounds per square foot on a five-foot clear span, supported on two ends only, figuring on a factor of safety of four.

Glass to be Lalzite quality, as manufactured by the Jeannette Glass Company, guaranteed by them to be free of manganese and without stresses and strains; each piece having stood polariscope test.

All glass to be 3¾-inch in diameter or 3¼-inch square, spaced on not more than 4¼-inch centers.

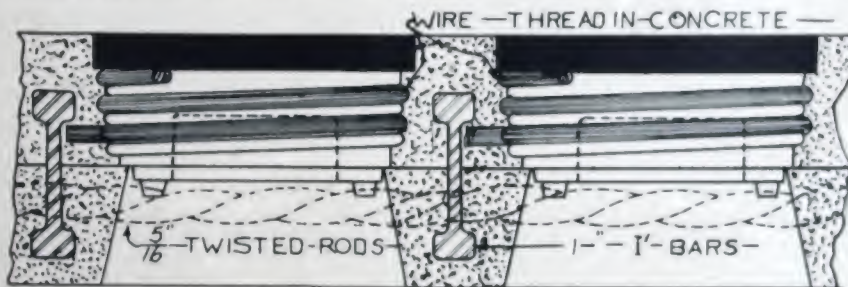
Side walls to have a plastic malleable coating to form a cushion protection for expansion. Glass to be of replaceable type, so as to permit of any replacement without defacing the surface of concrete.

Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred mesh sieve.

Caulk all joints around and between sidewalk lights with Tyte-Lite.

Work to be set by manufacturers' own experienced workmen, or to be supplied in complete factory of finished slabs.

All as furnished by American 3 Way—Luxfer Prism Company or other approved equal.



Simplex Replaceable Screw Glass Construction

(Follow standard form above for first two paragraphs.)

All glass to be 3¾-inch in diameter and spaced on not more than 4¼-inch centers. All glass to be equipped with wire thread to lock into concrete.

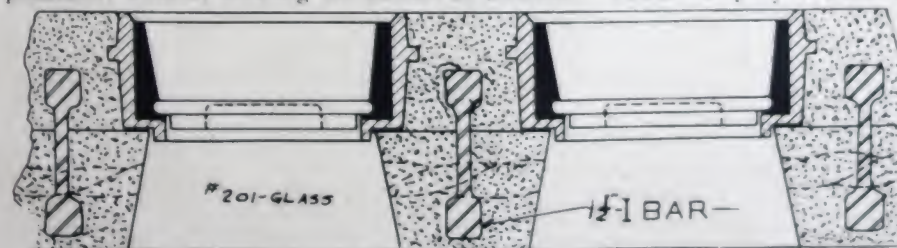
Side walls to have a plastic malleable coating to form a cushion protection for expansion. Glass to be of replaceable type, so as to permit of any replacement without defacing the surface of concrete.

Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred mesh sieve.

Caulk all joints around and between sidewalk lights with Tyte-Lite.

Work to be set by manufacturers' own experienced workmen.

All as furnished by American 3 Way—Luxfer Prism Company or other approved equal.



Protected Countersunk Glass Simplex Construction

(Follow standard form above for first two paragraphs.)

All glass to be not less than 2½-inch in diameter and spaced on not more than 4¼-inch centers.

Glass shall be countersunk into a cast iron cup.

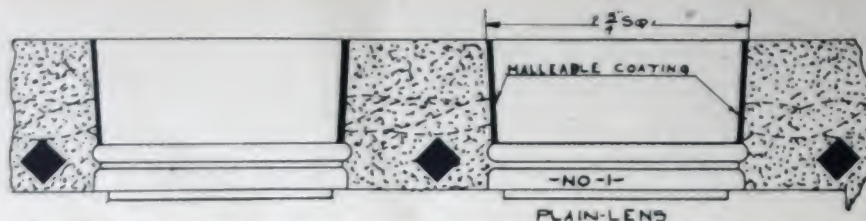
Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred

mesh sieve.

Caulk all joints around and between sidewalk lights with Tyte-Lite.

Work to be set by manufacturers' own experienced workmen.

All as furnished by American 3 Way—Luxfer Prism Company or other approved equal.



Reinforced Concrete Construction

Sidewalk Lights where shown on plans to be Standard Reinforced Concrete type with no exposed metal using $\frac{3}{8}$ -inch reinforcing rods both ways. They shall have a tested carrying capacity of at least three hundred (300) pounds per square foot on a five-foot clear span supported on two ends only.

Glass to be Lazalite quality as manufactured by the Jeannette Glass Co., guaranteed by them to be free of manganese and without stresses and strains, each piece having stood polariscope test.

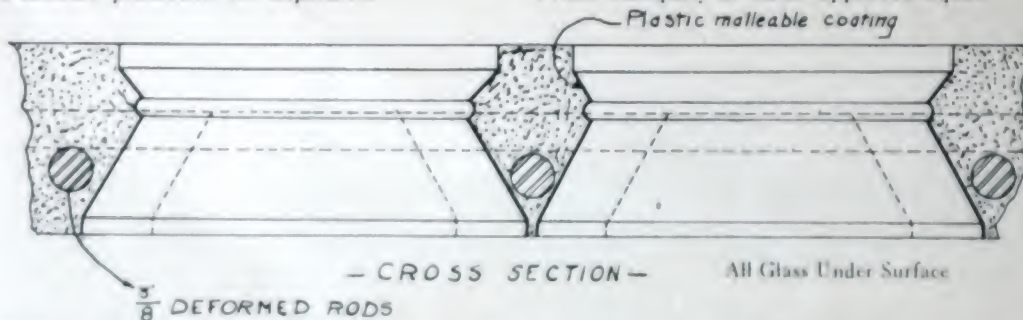
Side walls to have a plastic malleable coating to form a cushion protection for expansion.

All glass to be either $2\frac{3}{4}$ -inch diameter or $2\frac{3}{4}$ -inch square, spaced on not more than $4\frac{1}{4}$ -inch centers.

Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred mesh sieve. Caulk all joints around and between sidewalk lights with Tyte-Lite.

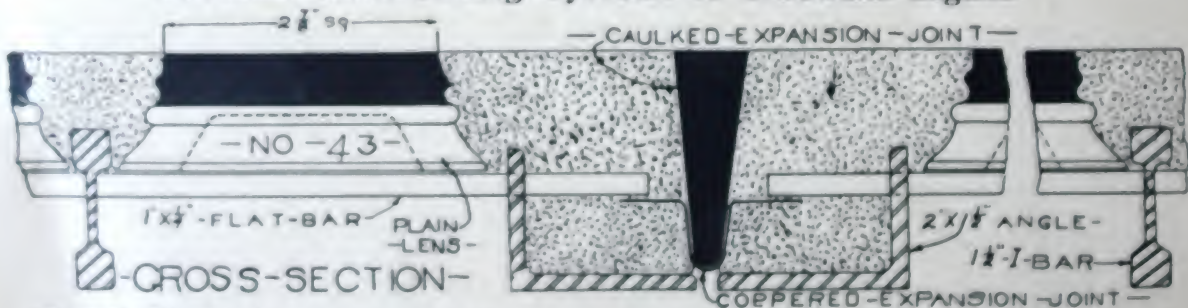
Work to be set by manufacturers' own experienced workmen, or in complete factory finished slabs.

All as furnished by American 3 Way—Luxfer Prism Company or other approved equal.



(Follow standard form above for complete specification except fourth paragraph, which shall read, "All glass to be 4 inches square (roof or skylight 6 inches square). Spacing between glass at top to be $\frac{7}{8}$ inch, at bottom $\frac{1}{8}$ inch.")

Paschall Interlocking System of Sidewalk Lights



Sidewalk Lights where shown on plans to be Paschall Interlocking system of construction composed of Standard $1\frac{1}{4}$ -inch I beams spaced $4\frac{1}{8}$ -inch on centers, interlaced with $1\frac{1}{4}$ -inch flat steel bars, $4\frac{1}{4}$ -inch centers and caulked. To be Meaker Galvanized finish. They shall have a carrying capacity of not less than four hundred pounds per square foot on a five-foot clear span, supported two ends only, figuring on a factor of safety of four.

Glass to be Lazalite quality as manufactured by the Jeannette Glass Co., guaranteed by them to be free of manganese and without stresses and strains, each piece having stood polariscope test.

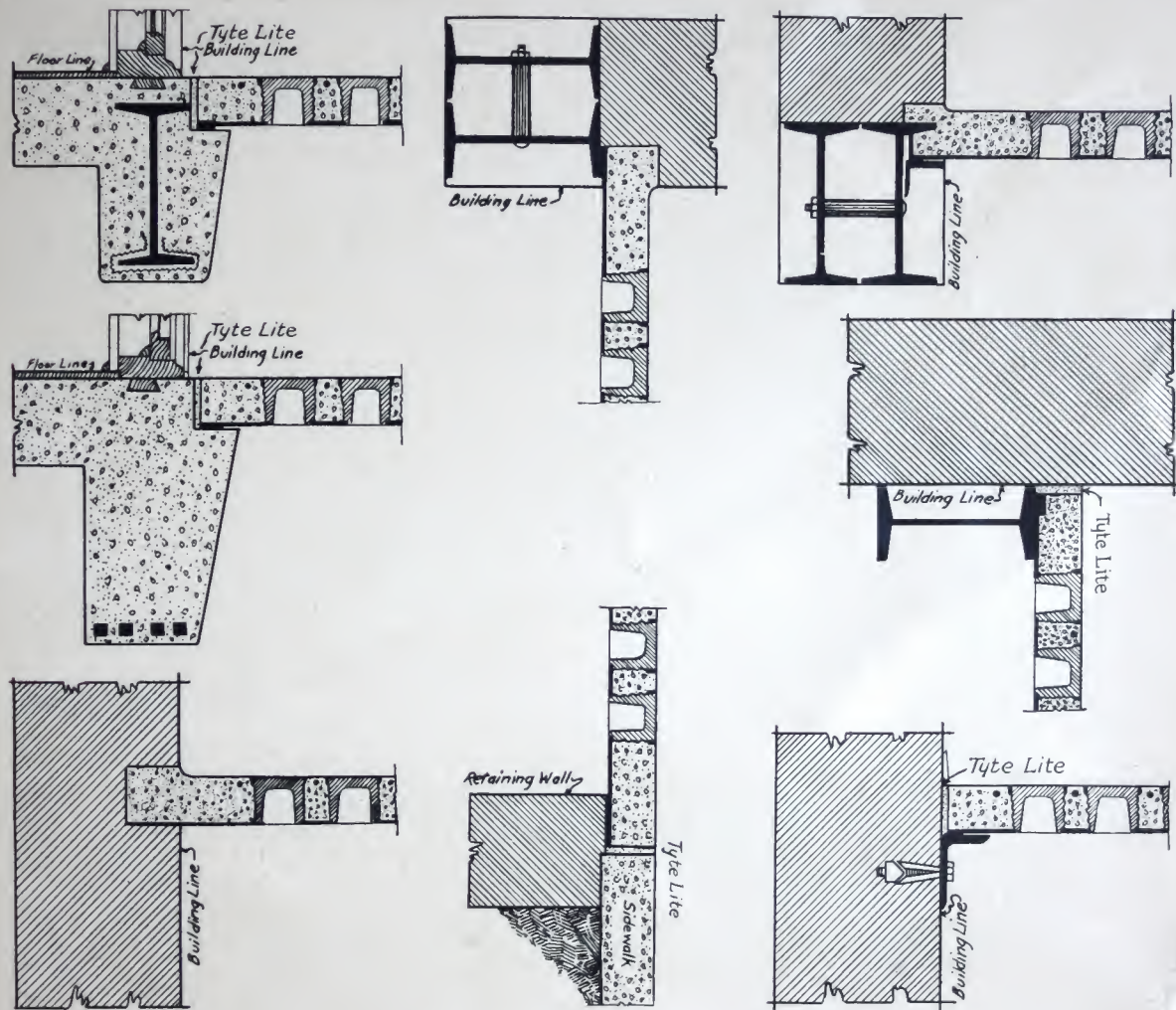
Side walls to have a plastic malleable coating to form a cushion protection for expansion. All glass to be $2\frac{3}{8}$ -inch square spaced in accordance with centering as noted above.

Cement must be reground to the extent of permitting 95 per cent to pass through a two hundred mesh sieve. Caulk all joints around and between sidewalk lights with Tyte-Lite.

Work to be set by manufacturers' own experienced workmen.

All as furnished by American 3 Way—Luxfer Prism Company or other approved equal.

Suggested Methods of Preparing Bearings for Factory Finished Sidewalk Light Slabs



See Page 29 for Proper Way to Caulk a Joint

INSTRUCTIONS FOR SETTING

3 Way—Luxfer Factory Finished Slabs. (Either Simplex, Fresnel or Reinforced Concrete.)

Bearings—At least 3 inches wide should be provided on all sides. Seat must be smooth, solid and secure. Do not use loose rocks, broken cement or insecure filling to block up to grade.

Joints—Must be left on all sides of slab

from $\frac{3}{8}$ to $\frac{3}{4}$ inch wide, depending on climate and latitude.

Placing—Remove slab from crate, being certain all edges are smooth and clean. Slip into seat over opening. Caulk the joints as described on page 29.

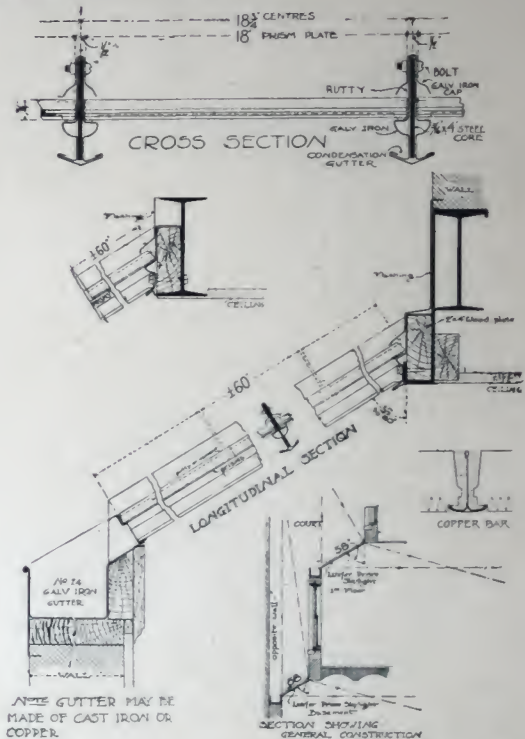
3 Way—Luxfer Extension Skylight Specifications

All extension skylights as shown on plans are to be 3 WAY—LUXFER Standard construction. The sash shall be built of steel members galvanized and so formed as to hold the glass rigidly in place.

Glass shall be "Lazalite" quality, as manufactured by the Jeanette Glass Co. It must be made without manganese.

Glass to be set in steel frame, joints puttied, to make them weather-tight. Frames to be capped with the 3 WAY—LUXFER patented combination weather cap and condensation gutter, of copper (or galvanized iron).

All as made and installed by the American 3 WAY—LUXFER Prism Co. or equal.



A few of the many obsolete models of sidewalk light and skylight glass we can supply on order.



